



Yale-New Haven
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Water and Life & Phase Changes of Water

Guide for Curriculum Unit 16.04.01

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“Water and Life & Phase Changes of Water” is a unit that can be used to cover the Connecticut high school science content requirements concerning: phase changes of matter. The concept of phase change must be approached just as that, a concept. Encouraging students to develop a conceptual understanding of phase change is a focus of this unit. If the teaching of phase change is approached as such with the end goal of students connecting phase change with energy, molecular movement, and intermolecular bonds students can develop a deep understanding of the concept and be better prepared to apply this understanding to multiple situations.

This unit also addresses the need for strong content to be partnered with the very conceptual phase changes of water. A section on the emergent properties of water is included. These properties are fundamental to life on this planet, an inherently interesting topic for students. The emergent properties, all due to the polarity of the water molecule, are: expansion upon freezing; usefulness as a solvent; high specific heat; and cohesive behavior. Examples to use in the classroom are provided to the reader as well. The backdrop of life sciences can help a high school teacher make more connections between physical sciences and students’ lives.

(Developed for Phy-Chem, AP Biology, grades 9-12; recommended for General Science, Biology, grades 9-10)

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