Curriculum Units by Fellows of the Yale-New Haven Teachers Institute
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Math Morphing Proximate and Evolutionary Mechanisms

Guide for Curriculum Unit 09.05.09
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While 12 February 2009 marks the 200th anniversary of the birth of Charles Darwin, his 1859 book *On the Origin of Species* that established evolutionary descent with modification as the dominant scientific explanation of diversification in nature also celebrated its 150th anniversary in 2009. The revolutionary thinking of this publication provoked controversy but never explored implications for the evolution of medicine until biologists recognized the significance for understanding the evolution of pathogens in the germ theory of disease, and an organism's need to defend against them.

This curriculum unit will enhance preparation for courses in the areas of math and physics by exploring the predictors and mathematical probabilities of evolutionary medicine, identifying graph-associated and data-driven patterns, generating fractals from evolutionary processes formerly ignored by medicine and the proximate mechanical causes linked with hard sciences. After discussing the symptoms, signs, and causes that manifest in single, materialistic, anatomical or structural changes within the body such as in genes and their products, this curriculum unit presents historical and evolutionary perspectives on diseases. The unit includes lesson plans integrating math and science.

(Developed for Math, grades 9-12, and Physics, grade 12; recommended for Math, grades 9-12, and Physics, grade 12)

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