



Curriculum Units by Fellows of the National Initiative  
2016 Volume VI: Making Sense of Evolution

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## **The Ever Evolving Brain and Neurodegenerative Disease**

Guide for Curriculum Unit 16.06.06, published September 2016

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The human brain is perhaps the last uncharted frontier of the human body. Understanding the story of human brain evolution provides a foundation for understanding human intelligence, and even the development of disease. Through this curriculum designed for 11<sup>th</sup> and 12<sup>th</sup> grade Physiology, students are introduced to the basics of neuroanatomy, functional areas of the brain, and evolution.

Evolution is traditionally taught in 9<sup>th</sup> grade Biology. This curriculum unit extends students' understanding of Charles Darwin's descent with modification by focusing just on the brain. When questioned what makes the human brain so unique among all other species, students will be able to cite evidence from the comparative anatomy of brain volumes, gyrification (brain folding), and genetics. A further extension of this unit will explore the relationship between evolution and medicine by considering two protein-folding diseases.

As a culminating Next Generation Science Standard project, students will utilize readings, internet research, and supplemental texts to model brain evolution, disease evolution, and brain disease. Students will showcase their brain evolution understanding through the creation of models for their Health Forum Series showcasing current health topics to their peers.

Keywords: brain evolution, disease evolution, Alzheimer's disease, prion disease

(Developed for Anatomy and Physiology, grades 11-12; recommended for Health Science, grades 9-12, and Biology, grade 9)

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