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Curriculum Units by Fellows of the National Initiative
2009 Volume VI: The Brain in Health and Disease

Brain Structure and Function and Disease

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This unit on brain structure and function covers brain anatomy and its relation to brain function. The unit is written with the intention of introducing brain science to middle school students. The brain is divided into three regions known as the forebrain, midbrain, and hindbrain. Each region individually or collectively corresponds to a specific function. Several concepts are introduced by explaining the role of the cerebral cortex, the role of the cerebellum, and the brain stem. After a thorough understanding of brain gross anatomy, this unit covers the anatomy of the neuron and neurotransmission. The unit further describes the cause and mechanism of the brain disease Parkinson's Disease. Additionally, the effects of alcohol on the brain are discussed. Both the Parkinson's Disease and the alcohol sections are intended to synthesize prior learning from the earlier sections presented. This unit concludes by providing creative and hands-on lessons and labs. Each lesson is written to encourage student participation and discussion with an open dialogic approach, so that all students, at all levels of language skills, feel comfortable learning the material. Teachers will also find that each lesson was written with the option of using various techniques that foster learning such as having students assist in generating a list of vocabulary words.

(Developed for Biology, grade 7; recommended for Biology and Life Science, grades 7-8)

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