

WEBSITE REVIEW

Neuroscience for Kids: Online Resources that Promote Student Engagement, Teaching and Learning about the Brain

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<https://faculty.washington.edu/chudler/neurok.html>

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Advances in neuroscience are helping to improve many areas of human life including education, medicine and criminal justice (Yusuf et al., 2014). In education, for example, recent developments in neuroscience are helping to further our understanding of the mechanisms of learning; knowledge from this area could potentially be applied to improve educational outcomes (Simmonds, 2014). Aspects of neuroscience that are applicable in educational settings therefore deserve to be promoted, with emphasis on how to translate novel research findings into practical education interventions (Simmonds, 2014). Yet, teaching neuroscience, particularly to elementary and high school students, remains a challenge to instructors (MacNabb et al., 2006). This problem partly stems from the lack of experimental resources for neuroscience education, especially in the developing world where the dearth of functional teaching laboratories hamper practical student training (Yusuf et al., 2014; Karikari et al., 2015). To overcome this challenge may require instructors to have access to neuroscience experiments that require little or no expensive laboratory equipment and supplies to run (while not compromising on the experiments' appropriateness in providing students with knowledge about the brain), making them suitable for use in resource-limited settings.

The quest for simple and interactive neuroscience teaching resources led me to the *Neuroscience for Kids* (NeuroK) website. Created and maintained by Dr. Eric H. Chudler with funding support from the National Institutes of Health, USA, the NeuroK website features valuable resources for teaching and learning about the nervous system. For user-friendliness, materials are arranged into different sections, such as:

- “Explore” – which provides access to an extensive list of brain-related educational materials
- “Experiments” – featuring simple experiments in neuroscience
- “Questions/Answers” – where user questions are posted and answered
- “Neuroscience in the News” – which provides updates on recent discoveries making the news, and
- “Books and Articles” recently published in the field of neuroscience.

This categorization allows users to navigate around the website to easily locate resources they may need.

On the *Explore* page, one will find resources that explain major neuroscience concepts. These resources

are further categorized, directing users to content that introduce them to: the world of neuroscience – who a neuroscientist is, and what it takes to become one; fundamental and higher functions of the brain; parts of the nervous system (such as the spinal cord, peripheral and autonomic nervous systems); neurological and mental disorders; the neuron; sensory systems; and effects of drugs on the brain. A remarkable feature is that after reading materials on specific topics, users are given the opportunity to review their understanding through interactive tests at the tail end of the pages.

The NeuroK website also has a collection of simple but insightful experiments on many aspects of the nervous system, providing instructors with adaptable resources for planning and teaching inquiry-based lessons in neuroscience. These experiments cover the structure of the brain, reflexes, hearing, senses, brain injury, sidedness, sleep and dreaming, memory and learning, among others. Attractively, many of the experiments here can be run on low budgets, meaning that they can be implemented in schools lacking modern laboratory facilities. Lesson plans are also provided, giving instructors stress-free experiences with teaching neuroscience. Through this, NeuroK educational materials provide a user-friendly approach to promote students' engagement and understanding, while addressing specific learning goals (Karikari, 2015).

Also, the simplicity and adaptability of resources on the NeuroK website make them useful for the design and implementation of hands-on outreach activities suitable for audience of different age groups, educational and social backgrounds. These outreach activities may include citizen science events and scientists-in-the-classroom visits.

Another laudable feature of NeuroK is that Dr. Chudler and his team welcome questions from users. Questions and suggested answers are posted online to help improve neuroscience literacy among the website visitors. This helps to clear ambiguities from the minds of users, ensuring that accurate information about the brain is disseminated to all.

Overall, I find the NeuroK website as a valuable neuroscience resource for both students and instructors. It is written in simple language, well arranged, interactive, and engaging. I do hope that such a great website will be maintained to continue to support teaching and learning in neuroscience.

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