



Expanding Our Reach:

Using Technology and the Internet at BAW and in Neuroscience Outreach



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Why use technology?

Isn't it a shame that you have to physically stand in front of this static poster to get the information it contains? Confining information to one physical location limits the number of people it can reach, and presenting information in a static format limits its educational impact, since our brains learn best through interaction and feedback.

Our intention with this poster is to show you alternatives you can use to broaden the impact, interactivity, and intellectual engagement of your education outreach ideas and Brain Awareness Week activities. These alternatives take advantage of now ubiquitous technologies accessible to any untrained individual with an interest: creative multimedia, dynamic PowerPoint presentations, and distributed information networks, like the Web.

Using these tools, you can 1) generate dynamic content which gives immediate feedback to your students, 2) easily provide your content to others, and 3) take advantage of the creative output of the entire global community.

How to get started

• **Presentation programs** like PowerPoint and Keynote are powerful tools for creating self-running outreach presentations and tutorials. Hyperlinks can be created that link a main menu slide to content slides, each containing a different activity, video, or demo. Multimedia can easily be incorporated into these presentations- in addition to creating animated objects using the presentation software directly, videos and sounds can be embedded in the slides.

• Many **videos** on the web can be downloaded and embedded into presentations or used when away from an internet connection. If a video is not directly downloadable (e.g. on YouTube), or is in a format that cannot be read, use an online converter such as Zamzar to download the video, or install a web browser plugin that will allow you to download these files (some even allow for you to download interactive Flash programs and animations).

• **Websites** can be easily generated using free, user-friendly software such as iWeb and Google Sites. These are a great way to provide info on local BAW events and resources.

Some of our favorites

These are some of our favorite examples of engaging and interactive use of technology:

- **Mouse Party:** <http://learn.genetics.utah.edu/content/addiction/drugs/mouse.html>
- **National Geographic Brain Info:** <http://science.nationalgeographic.com/science/health-and-human-body/human-body/brain-article.html>
- **Dangerous Decibels:** <http://www.dangerousdecibels.org/virtualexhibit/>
- **Probe the Brain:** <http://www.pbs.org/wgbh/aso/tryit/brain/>
- **BrainyActs!:** <http://brainiac.magnify.net/>
- **The Brain from Top to Bottom:** <http://thebrain.mcgill.ca/>
- **Amazing Feats of Aging:** <http://www.omsinfo.org/visit/life/aging/>
- **Neuroscience For Kids:** <http://faculty.washington.edu/chudler/neurok.html>
- **NEI Video Library:** <http://www.neiglobal.com/>
- **Multimedia Neuroscience Education Project:** <http://www.williams.edu/imput/>
- **Neuro Kids:** <http://web.mac.com/smholsten/NeuroKids/NeuroTrivia.html>
- **Brain Teasers:** <http://brainconnection.positscience.com/teasers/>
- **Nobel Prize:** <http://nobelprize.org/educational/> (search for Pavlov's Dog or Split Brain)

How we use technology in outreach

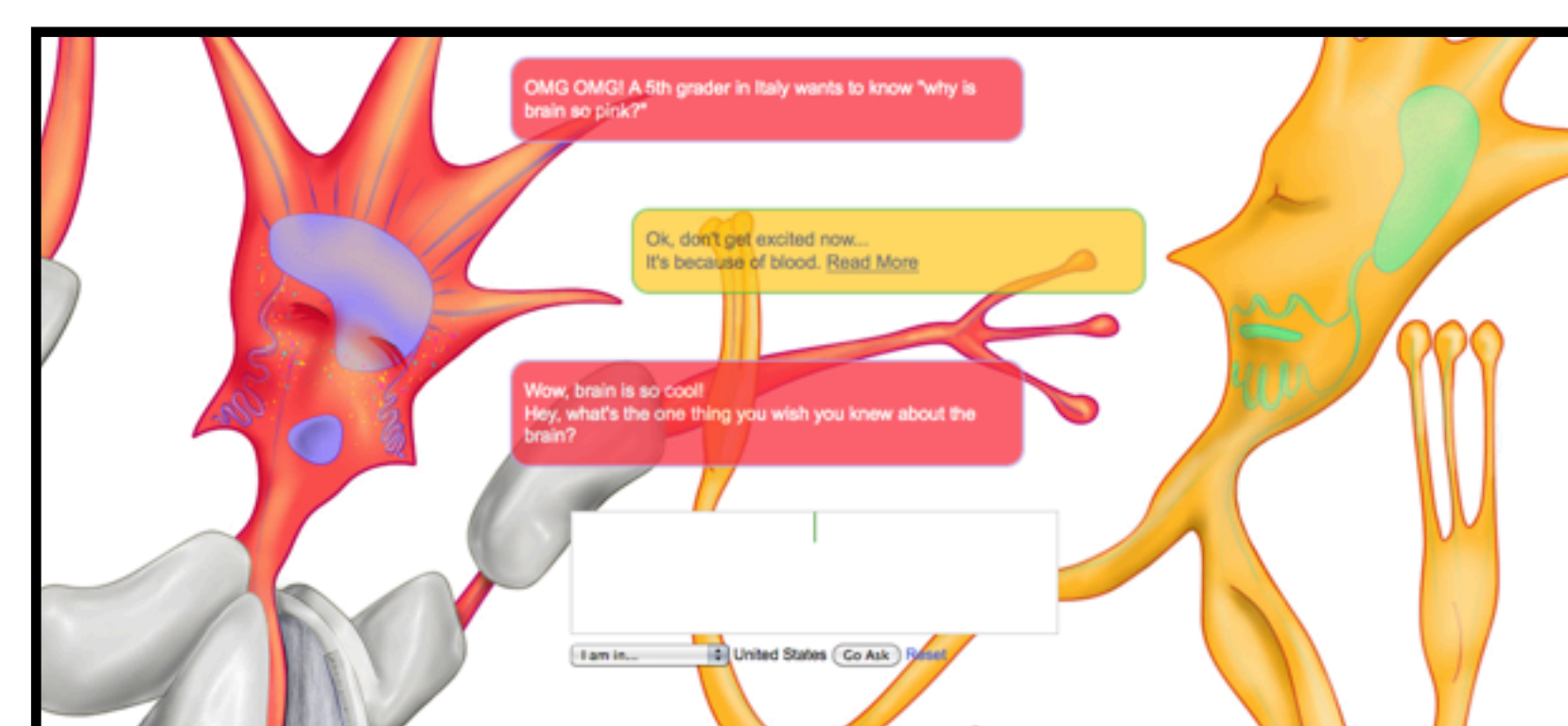
Websites

Home Page:

<http://students.washington.edu/nbout/>
Our home page represents our main web presence. It includes an online form for teachers to request classroom visits, information on past and future BAW activities, a collection of free neuroscience lesson plans and video demos, tools to help us manage our organization's membership, and provides a means for sponsors to donate money.

The Brain Question (in beta)

A coming addition to our site, this will allow kids to submit questions about the brain to our neural mascots, Excite and Inhibit. Members of our group will post answers on the website, providing them an opportunity to improve their science communication skills, as well as helping increase the amount of neuroscience material accessible to children on the web.

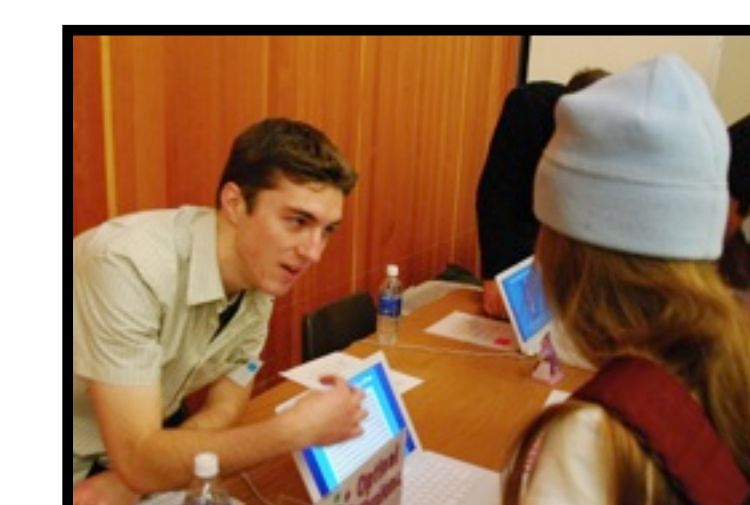


Interactive Computer Demos

We've created several interactive presentations that incorporate multimedia obtained from the web. These are some of our more popular BAW exhibits. These allow students to select topics that interest them and provide tools that can be easily shared as well as adapted to different audiences. Download some at: <http://students.washington.edu/nbout/SfN/>



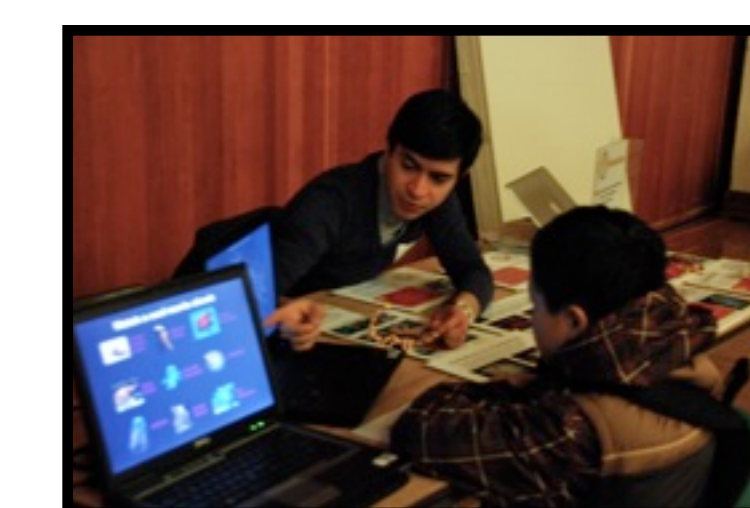
Visual Illusions- Using visual illusions, we discuss different aspects of visual processing, including photoreceptor fatigue and motion detection.



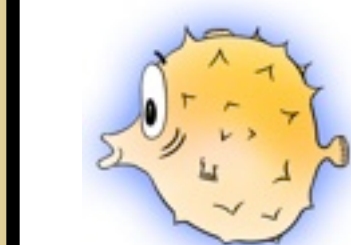
Alien Audio- Using an auditory illusion, students learn about human language processing and the brain's ability to fill in missing information



Virtual Haircut- This holophonic sound illusion teaches students about how our brains process sound localization cues.

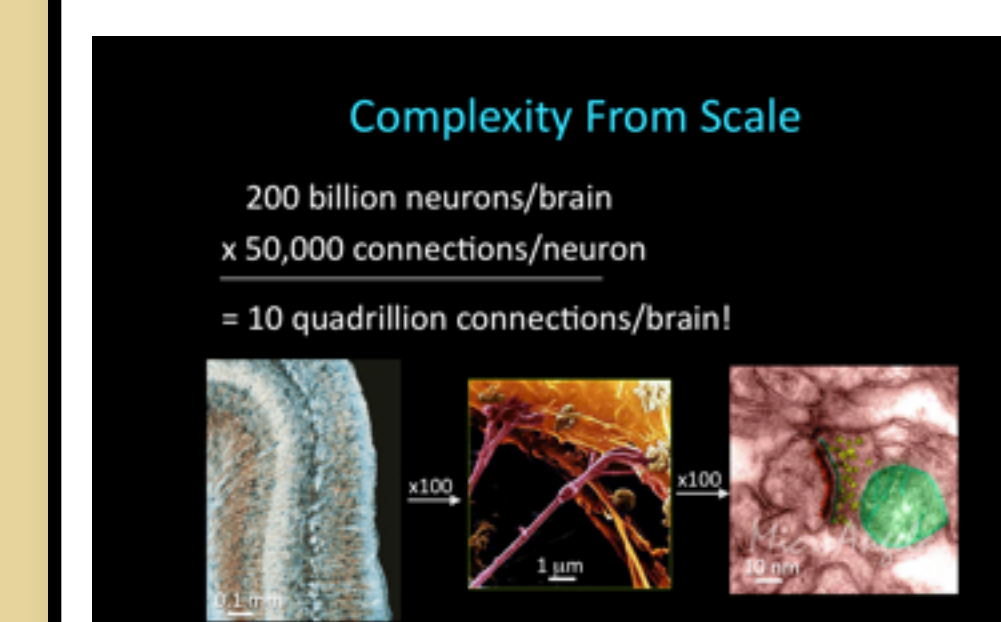


McGurk Effect- This illusion teaches students about the interaction between visual and auditory cues in understanding and perceiving speech.



Neurotoxins- Using videos from the web embedded in the presentation, students learn about a variety of neurotoxins and the animals that produce them.

Classroom Presentations



When we visit schools we often do an introductory lecture on the nervous system. We've found dynamic multimedia presentations to be an effective tool for engaging students and distilling complex ideas to a level students can understand. Download examples at:

<http://students.washington.edu/nbout/SfN/>

Laboratory Equipment

Few students have the opportunity to interact directly with laboratory equipment in their classrooms. Collaborators from the medical school and research labs often bring laboratory equipment to our annual Brain Awareness Week Open House. These include:

- Microscopes for students to look at brain slices and neurons (Perkel Lab)
- Transcranial Doppler to measure brain blood flow (UW Anesthesiology & Pain Med.)
- EEG to measure brain electrical activity (UW EEG)

