

Neuroscience Club Meeting Minutes  
September 28, 2009

Outreach with Dr. Rector

- We're here b/c we want to learn about the brain and we do outreach to teach others about the brain.
- Many times your audience won't know anything about the brain. The presentation today can be applied to any age group
- Dr. Rector
  - Went to UC Davis and Majored in Biology, but took class on brain Senior Year and convinced him
  - Went to Graduate School at UCLA and started doing outreach w/ other graduate students
- 4<sup>th</sup> grade is the most important age for brain development in your life (age 10)
- Presentation: can be scaled up or down depending on age
  - Start w/ questions tied to the brain and age appropriate
    - For preschoolers: "where is your brain"
    - How many cells are in your brain (neurons)? 10-100billion
    - Let your questions get increasingly harder, they will relate better if the questions apply to them (do you have more brain cells than your younger sibling?)
    - Ask someone to draw a brain cell on the board (normally get circles or squares)
    - Have the kids repeat complex concepts/words to you (dendrite for ex)
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  - For a long time Neuroscientists thought that the brain was like an electrical circuit where all of the cells are connected, this was proved wrong when we discovered the space between boutons and other cells, you can then introduce the idea of neurotransmitters by asking them how they think the messages travel from nerve to nerve if they're not connected?
  - For the older kids, you can talk about how drugs act like neurotransmitters (start w/ alcohol and aspirin)→ you can talk about addiction and how it alters the synapse of the cell→ and prescription
  - Parts of the Brain: use plastic brain
    - Areas of the brain that control functions
  - Reflex Relay Game
    - Get all the kids to stand up and ask for volunteers to be the dendrite in the knee and the bouton in the spinal cord, split the rest of the class in half, and time how fast they can send the message
  - While the kids are standing, divide them into groups (4-5 per kids group), ALWAYS MAN THE STATIONS!!!
  - Action Potentia Demonstration
    - Use arm to show muscular action potentials
    - Pulse coded modulation: when stronger stimulation yields more frequent action potentials
  - Human brain

- Encourage them to be careful
- This brain is hard b/c it has been preserved, but your brain is soft like jello
- No pain sensors are in the brain
- Neurosurgeons discovered brain functions by applying electrical current to different areas of the brain, and asking people what they felt, when different areas were stimulated
- Microscope Demonstration
  - Let kids see brain cells (golgi stained slides of human cortex from people with parkinson's, BE VERY CAREFUL!!!!)→cells are normal despite the disease
  - Has neurons and some glial cells stained
- How technology can model the Nervous system
  - Pulse coded modulation
  - 1,000,000 action potentials are firing at once depending on how bright the light stimulus is
- Don't make things up, it is ok to admit that you don't know. If you want to you can give them your email so that they can email you their questions

#### Outreach Announcements

- Outreach events will be on Tuesdays and Thursdays
- Going to do Outreach at Lincoln Middle School and Franklin and Sunnyside Elementary Schools
- We will also do outreach at the Palouse Science Center on the weekends
- Look for the Special Olympics in the Spring

#### Shirt Designs

- Congrats to Haley Brabant! Our shirts will be dark grey w/ crimson letters!