<u>Announcements</u>

- Aug 8, noon: Final poster (send PDF, 44 x 32 in) due; if poster is not received by this time, you will be responsible for printing your own poster.

- Aug 13, 3 pm: Final Abstracts Due (send either text in an email message or file in WORD)

- Aug 14, noon: Final Talk Slides Due; send PPT.

- Aug 15: Research Symposium

- Aug 17: Last official day of summer research programs.

CENTER FOR SENSORIMOTOR NEURAL ENGINEERING

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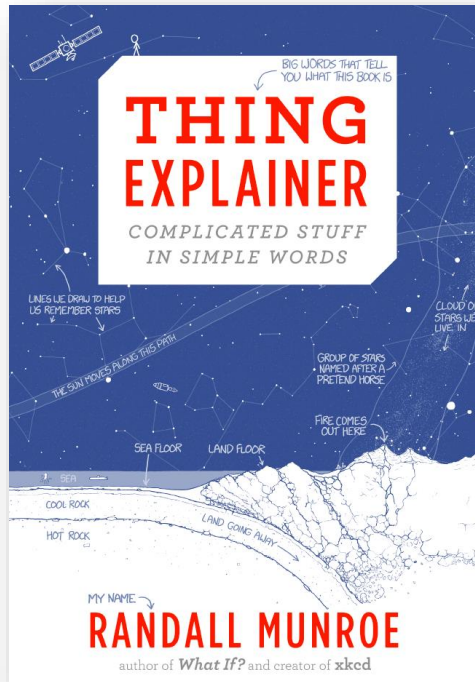*Improving health and function by engineering neural devices*

AUGUST 7, 2018

Communicating Science to the Public the UpGoer Way

Eric H. Chudler, Ph.D.
Center for Sensorimotor Neural Engineering

The Thing Explainer

https://xkcd.com/thing-explainer/

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Space Travel Simplified

http://xkcd.com/1133/
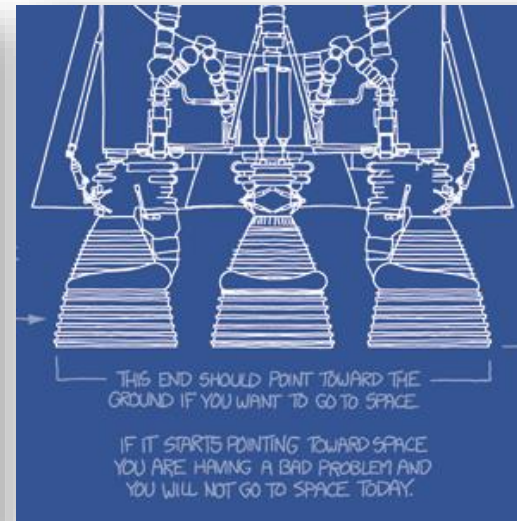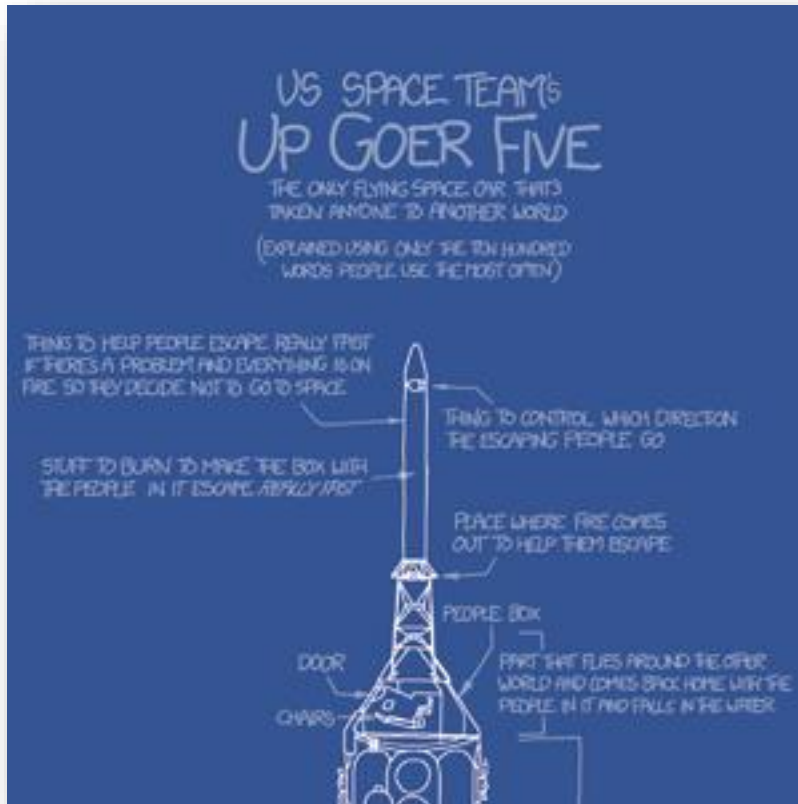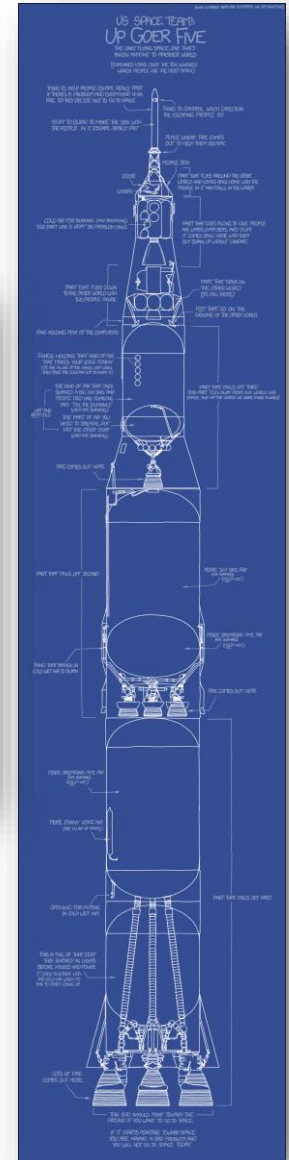
A Scientist/Engineer Walks into the Room…

Modeling Conduction Velocity After Activity Dependent Electrical Stimulation Alters Myelin Post Spinal Cord Injury

Following an incomplete spinal cord injury (SCI), axons undergo demyelination, and oligodendrocytes begin remyelinating the remaining, intact axons. However, these new sheaths of myelin result in a slower conduction velocity of action potentials partially because they are thinner. Previous research has shown that neuronal activity can increase myelination and improve gait. In this blind, pilot project, we explore whether *in vivo* targeted activity driven spinal stimulation (TADSS) has similar effects. We have seen substantial recovery of forelimb motor performance after cervical SCI with TADSS; this project examines whether faster conduction velocities due to alterations in white matter could serve as a mechanism explaining this phenomenon. We hypothesize that activity dependent stimulation will globally mitigate thinning of descending motor axons found at the epicenter of the injury and caudal to it. Eventually, we will measure other parameters that affect conduction velocity such as the internode length of myelin and more fully test the conduction speed by looking for evoked responses *in vivo*.

Jargon?

Modeling Conduction Velocity After Activity Dependent Electrical Stimulation Alters Myelin Post Spinal Cord Injury

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Advanced/Specific Vocabulary? Requisite Knowledge?

Modeling Conduction Velocity After Activity Dependent Electrical Stimulation Alters Myelin Post Spinal Cord Injury (Alexis Drake, 2015, abbreviated abstract)

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A Journalist, Kid, Your Grandma Walks into the Room…

(UpGoer statement)

The brain controls our body. It talks through cells in our backs that go all the way to our other body parts and make them move. The brain tells them what to do like cars driving down a fast road.

When someone hurts their back, it's like a car hits another car and causes a back up, blocking the road. They then lose some control over moving their body. Cells in their back try fixing themselves. However, the new cells don't work as well. They are slower. It is like the cars have to go out of their way and use smaller roads, and it takes longer to get places.

In the long run, we are trying to see if shocking the cells in the back when a hurt animal is trying to reach for a piece of food will help them. We hope that the shock will give the cells a thicker covering because a thicker covering is like a faster road.

The challenge: Can You Explain a Hard Idea Using Only the Ten Hundred Most Used Words? It's Not Easy!

http://splasho.com/upgoer5/

THE UP-GOER FIVE TEXT EDITOR

CAN YOU EXPLAIN A HARD IDEA USING ONLY THE TEN HUNDRED MOST USED WORDS? IT'S NOT VERY EASY. TYPE IN THE BOX TO TRY IT OUT.
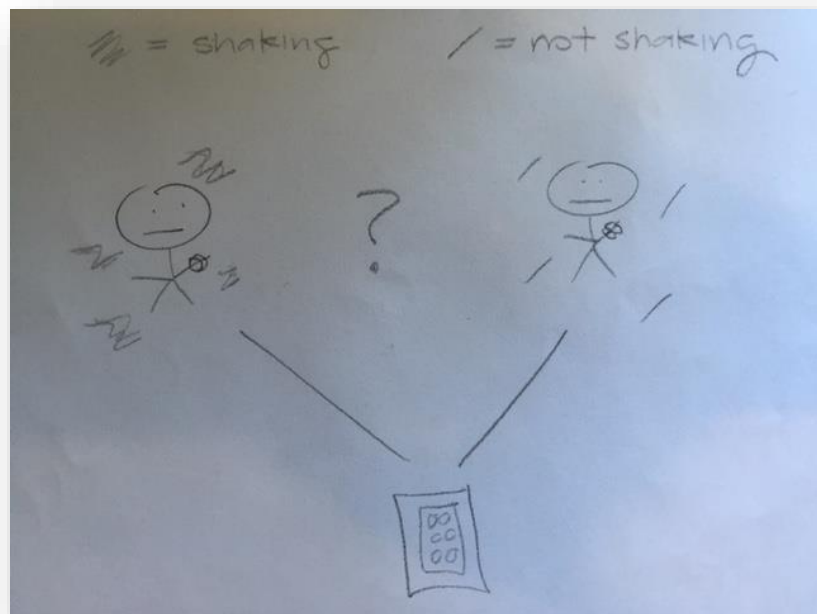
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Sketch, Write & Compare Your Research!

1. Find a partner (someone who knows nothing about your project).

2. Draw a quick sketch of your own research abstract.

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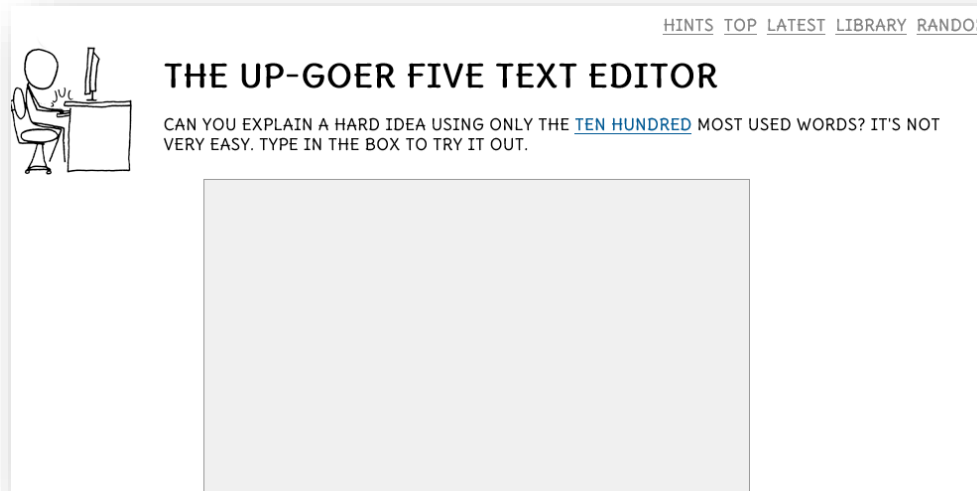
3. Use the UpGoer text editor to write your UpGoer statement.
   www.splasho.com/upgoer5/

4. Trade electronic devices with your partner. Read your partner's UpGoer Statement. Quickly sketch their statement.

5. Compare the sketch you made with the sketch your partner made of your research.

Share your UpGoer Statements! (Optional)

http://splasho.com/upgoer5/

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Tenhundredwordsofscience.tumblr.com