

WORKSHEET
Science on Saturday

In the Mood: Deciphering Complex Brain Signals

Video Links:

[Deciphering Complex Brain Signals](#)

Presenters:

Alan Kaplan – LLNL Scientist

Katherine Huang – Dougherty Valley High School

1. Why do scientists want to better understand the brain?

2. What are some differences between the human and sheep brain?

3. What is the difference between structure and function?

4. What is the Connectome? _____.

5. C elegans have _____ neurons, while humans have _____ neurons.

6. Brain images are sliced.
A 2D image of the brain is measured in _____.
A 3D image of the brain is measured in _____.

7. When does a neuron “spike”?

8. How many combinations of bits are there for ...
2 bits: _____ => 3 Bits: _____ => 37 bits: _____ (Enough for 86 billion neurons!)

9. 86 billion neurons, spiking every 10 seconds requires _____ gigabytes / sec, which is like _____ HD movies at the same time!

10. What is the difference between emotions and mood?

11. Brain activity moves in _____, which are broken down into _____.

12. By creating a scale from frequencies, what can scientists predict?