

Letting Knowledge Serve
through interdisciplinary
neuroscience, art, and a
few extra brains!



Northwest
Noggin



Noggin @ BRAINet

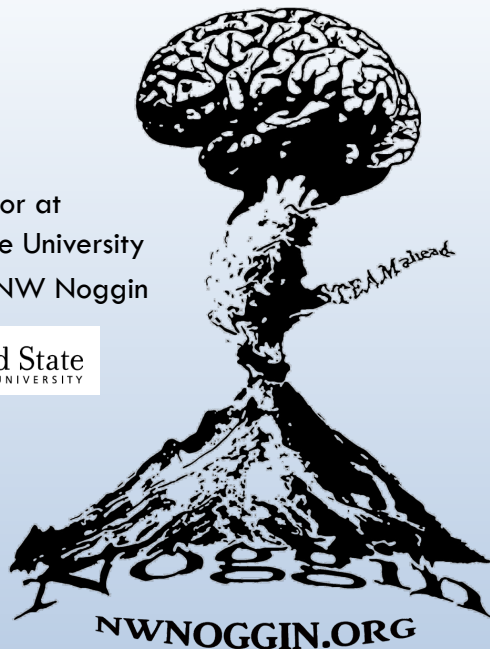
nwnoggin.org

Jeff Leake



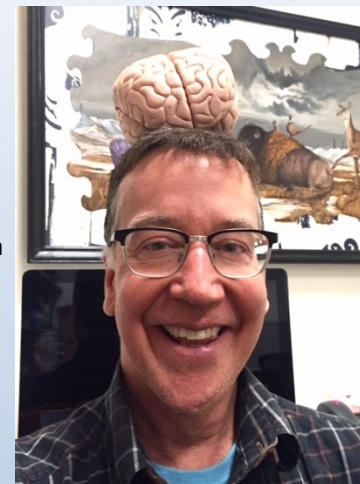
Jeff Leake

Artist, Instructor at
Portland State University
Co-Founder, NW Noggin



Jeff Leake, M.A. currently teaches interdisciplinary art and neuroscience courses in the Psychology and University Studies departments at Portland State University. He is also the president, co-founder and arts coordinator of the nonprofit NW Noggin. A working artist, Jeff has completed prestigious residencies in Shanghai, Nevada and Wyoming (UCross), and spent last month in Latvia. He has traveled the U.S. lecturing and teaching neuroscience through art and was recognized as an innovator by the Obama White House.

Bill Griesar



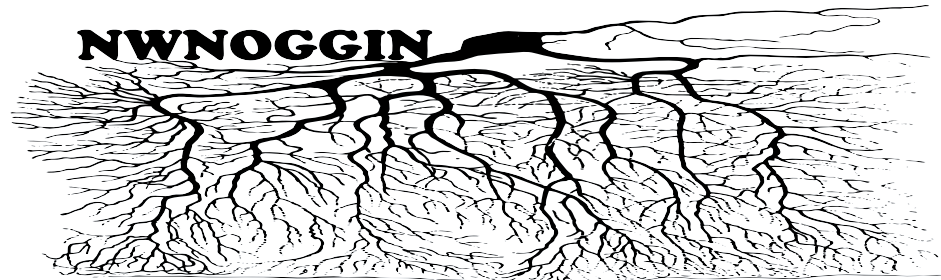
Bill Griesar

Senior Instructor at
Portland State University
Adjunct Instructor, OHSU
Co-Founder, NW Noggin



Bill Griesar, Ph.D. is Senior Instructor in Psychology/Neuroscience at Portland State University and co-founder and Neuroscience Coordinator of NW Noggin. He has developed and taught arts-integrated neuroscience courses at PSU and OHSU since 2001 and helped create an interdisciplinary neuroscience minor at PSU. Through NW Noggin he's met with more than 50,000 K-12 students over real brains and art. He's been recognized as an innovator by the Obama White House and has won numerous teaching awards.

NWNOGGIN



nwnoggin.org

Arts integrated neuroscience
outreach for K-12 & community



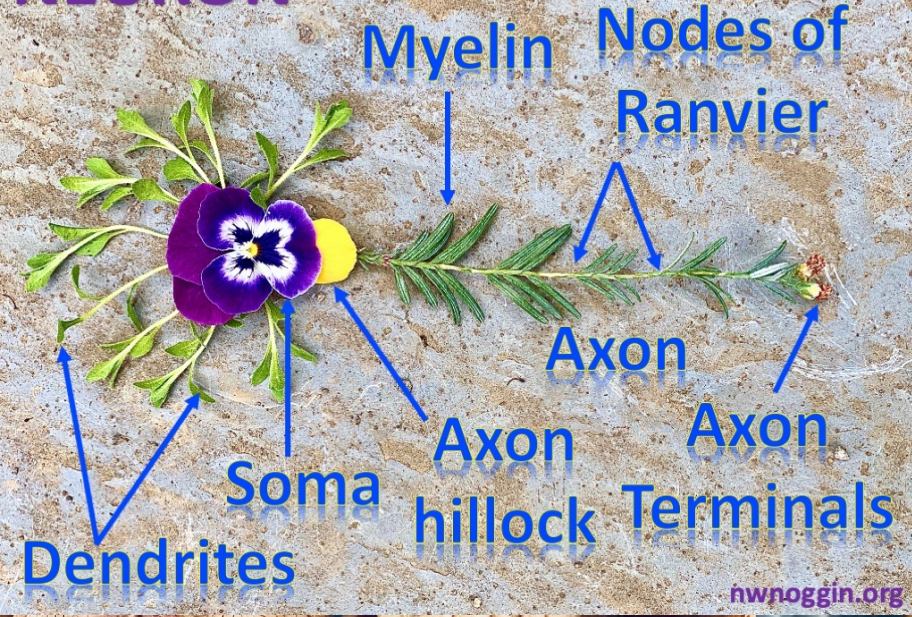
TEN YEARS!
ALL VOLUNTEER (everyone)
50,000+ community members



Art & Brains!



NEURON



Sleep
Anxiety
Depression
ADHD
Autism
Development
Perception
Drugs
Memory
Language
Racial Bias

...



***What you do
has relevance
GO PLACES***



We all pay for research



Greater understanding
More support for research
Increased participation
Less confirmation bias
New directions
FUN!

Connections matter

BUILD NEW CONNECTIONS



- **Academic priority K-12, urban/rural communities, tribal majority schools**
 - Not always well-funded, or valued, often ignored, subjected to standardized testing that primarily benefits others. Complex brain development underway, unacknowledged diversity, racism, bias, police brutality, mental health,...
- **Young graduate researchers, undergraduates (Portland State University, OHSU,...)**
 - *How does my research relate to the world? How can I explain it? Where can I go from here?*
- **Houseless youth (p:ear), incarcerated youth (MacLaren/Coffee Creek Correctional Facilities)**
 - *“It’s like people see me as an object, not as a human being”*
- **Artists: Painters, Dancers, Storytellers, Musicians, Poets**
 - *How does my work relate to other fields? How do I connect with new audiences?*
 - *How is my practice influenced and enriched by discoveries about the brain?*
- **Community organizations**
 - *TRIO, Area Health Education Centers (AHECs), American Brain Coalition,...*
- **Area businesses (BioGift, Intel, Fort George, Floyds/Street 14, Hospitals)**
 - *How can we better connect with everyone in our community?*
- **Members of the public**
 - *Why are my taxes spent on research? Art? What are we discovering? Making?*



Why art & brains..?

- Motivation, engagement, **empathy**
- Exploration, creativity, INNOVATION
- **Personal relevance of STEAM material**



Building a #rosehipneuron in #pipecleaners 🧠 #nwnoggin 🧠🎨 #sciart #scicomm 🧠
nwnoggin.org/2018/08/31/ros...

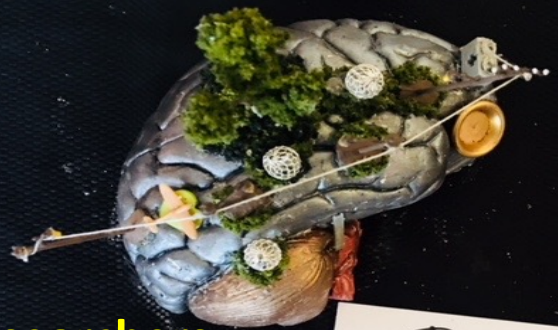


To see other people



p:ear

Researchers
Clinicians
Policy makers
Houseless youth



Bunny:
"we are all
connected"

HOMELESSNESS & THE BRAIN

Thurs, Oct 19th
10am - 1pm



p:ear mentor gallery
338 NW 6th Ave
nwnoggin.org pearmentor.org
STREET KIDS
ART
NEURO-
SCIENCE

Rural Outreach

TO GO PLACES!

Food, housing, baby goats...

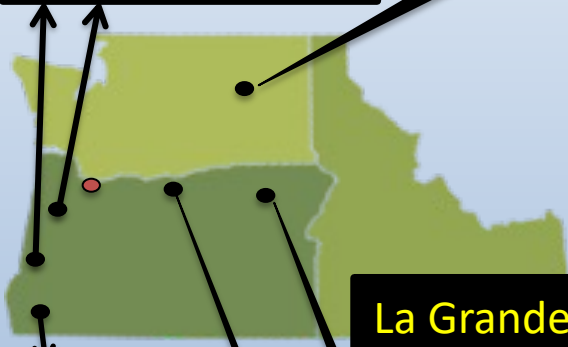
Siletz, Amity &
Willamina, OR
Pop: 4,000

Davenport, WA
Pop: 1,700

La Grande, OR
Pop: 13,000

Heppner & Ione, OR
Pop: 1,240

Meservy
Meadows,
OR Pop:
~40



Synapses, Stories and Song!



Tribal majority schools



Noggin + TRIO



Oregon Coast Fall, 2021

Noggin + TRIO

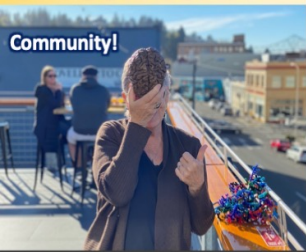


**Community
Connections**

NOGGINS ON THE OREGON COAST

The Stand, Seaside

nwnoggin.org



Community!



Fort George Brewery, Astoria



Rosebriar Mansion, Astoria



Astoria Coop



Peter Pan Market, Astoria

**THANK YOU FOR SUPPORTING
ART/NEUROSCIENCE OUTREACH!**

**Astoria Middle School, Seaside Middle School
West Exchange Preschool, Astoria High School**



- Jasmin Mabry*
- Ellie Phelps*
- Michael Deveney*
- Greyson Moore*
- Lidia Echeverria-Garcia*
- Jeff Leake*
- Bill Griesar*
- William Leverette*

Noggin on the Coast
October 4 - 7, 2021



N.W. Noggin
@NWNoggin

“What causes that feeling of #paralysis as you’re falling asleep? Does #daylightsavingstime affect sleep? Why is #sleep important for #brains? What brings on #nightmares?”

#nwnoggin @ #astoriaoregon high school
🎨👉 nwnoggin.org/event/noggins-...

#outreach #allvolunteer ❤️



N.W. Noggin
@NWNoggin

“Can you get a #concussion in your #entericnervoussystem or #microbiome? Is the #brain like a computer? What part of the brain is involved w/#rhythm & making your foot tap? Do you ever see a brain that’s smooth?”



N.W. Noggin
@NWNoggin

“I saw #mycelium in the forest and it looks like #brain cells 🍄! I think my #brain learns through stories” 🤗
🧠👉🐼🤗! Yes ❤️

Some of the deepest insights and questions from #preK today 😊😊

#nwnoggin #oregoncoast 🐦🌊👉👉
nwnoggin.org/event/noggins-...



N.W. Noggin
@NWNoggin

“Does #alcoholism run in families? How does smoking cigarettes affect the brain? What about #cannabis? What happens in your #brain if you have #ADHD? #DID? Why are drugs more dangerous for kids?”

GREAT QUESTIONS @ Seaside Middle School 🧠👉
nwnoggin.org/event/noggins-...



Neuroscience & Law

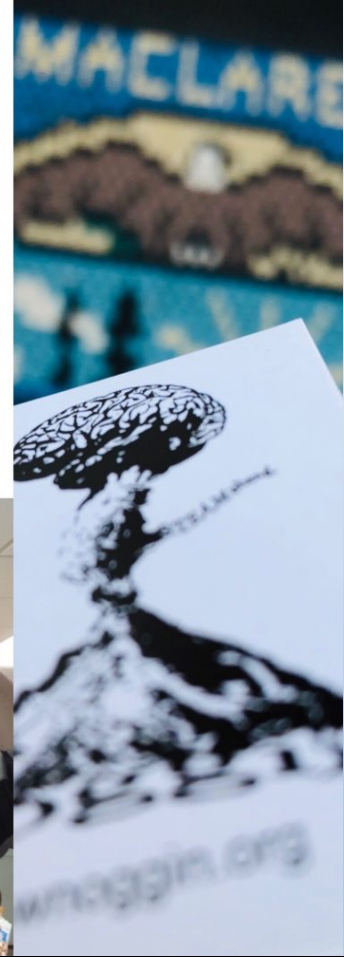
To listen, learn, empower & make change



Youth get visual, hands-on experience with the brain

NW Noggin, a neuroscience outreach nonprofit, reached out to youth at MacLaren Youth Correctional Facility this week to teach about brain development.

 Lindsay Keefe on January 24, 2019



MacLaren Youth Correctional Facility



At SfN conferences



Posters, art of neuroscience and...

School visits



Turner Elementary, DC



Public outreach and connection

And also to Capitol Hill

More connections: Congressional office visits
Congressional Neuroscience/STEAM briefing

“Bipartisan”
neuron



Research should inform policy

NOGGINFEST!

& Art

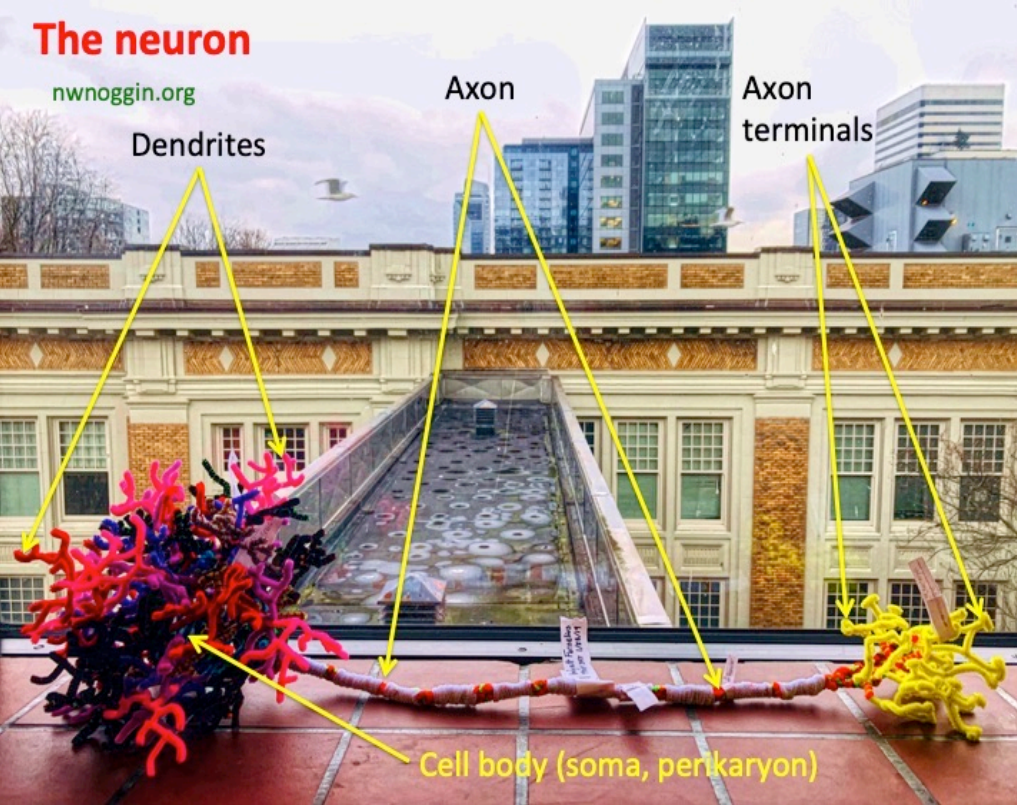
& Music

**Music, art, research,
brains, all ages, FREE**



The neuron

nwnoggin.org



MAKE YOUR OWN: Details @ nwnoggin.org

Pipe cleaner brain cells!

Making a pipe cleaner neuron...

1. Start with a good amount of (colorful) pipe cleaners, I have 20 here.



2. Create the soma or cell body by linking several pipe cleaner hoops together.



3. Attach dendrites to your soma by wrapping them around the soma pipe cleaners.



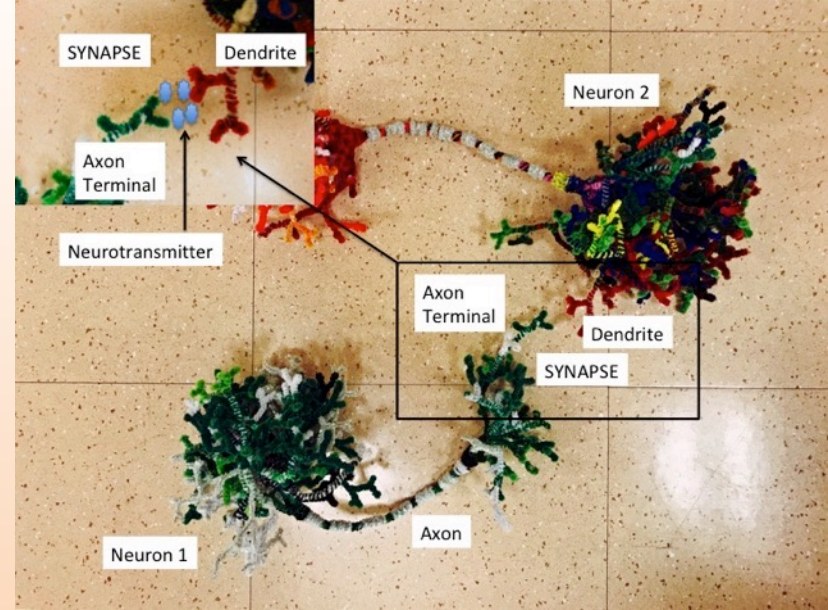
4. Attach axon terminals to the other end of your axon.



5. Wrap myelin around your axon.



6. Create a nucleus for your soma by wrapping two pipe cleaners around each other. Attach your nucleus inside your soma. You have a neuron!



MAKE CONNECTIONS

MAKE ART





Public Schools

During COVID-19

#showusyourbraincell

Neurons are a type of brain cell

The majority of neurons share some basic features

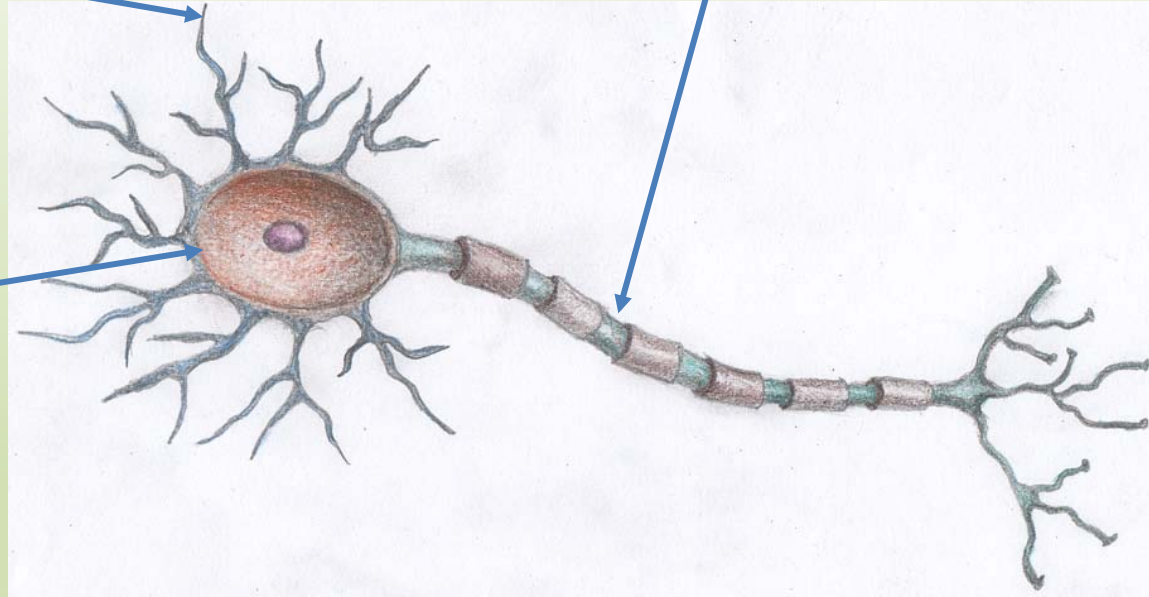
Dendrites

(Receive input from other neurons at gaps called **synapses**)

Cell Body

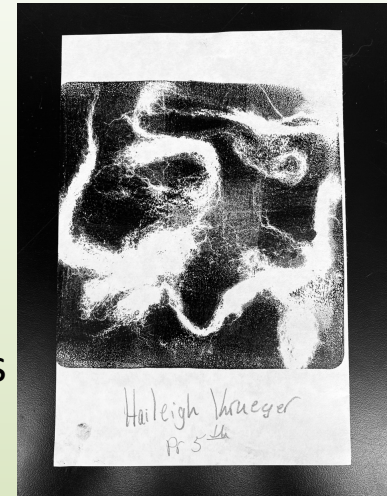
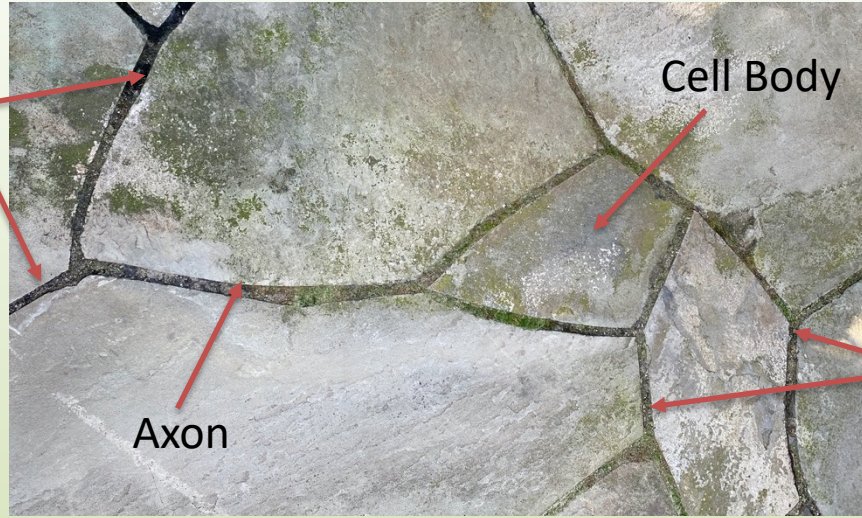
(or Soma, location of **nucleus** and cell **DNA**)

Axon (Carries electric message)



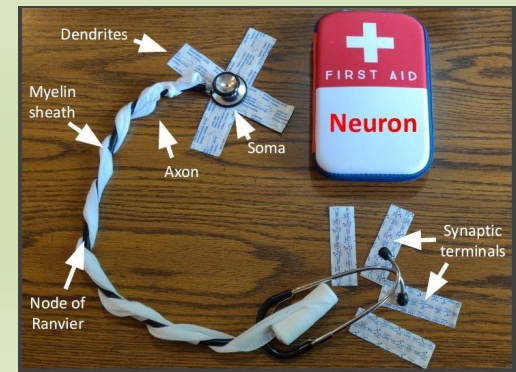
Found Object Brain Cells

Take a look around you, what things do you see that share those structures?



Can you construct a neuron out of things that you find?

What things for you represent the function of a neuron? Or the function of specific parts of a neuron? Do those things have personal meaning, or say something about you?



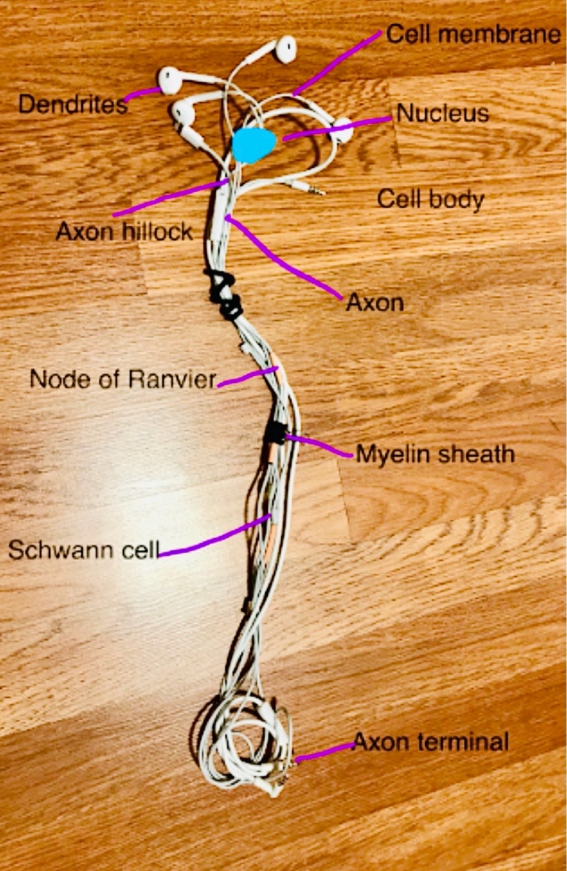
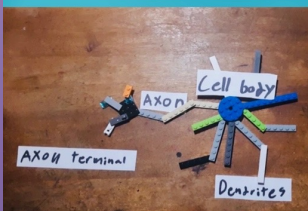
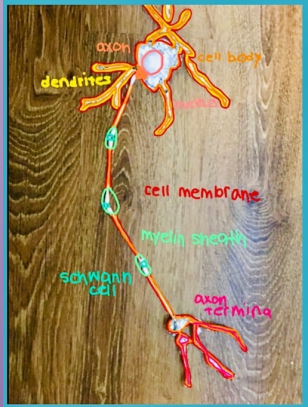
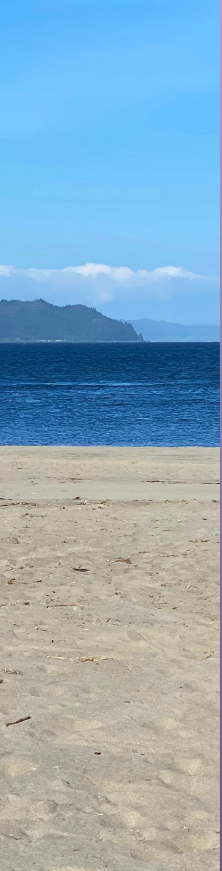
Seaweed Neuron

#showusyourbraincell



From Plage des Chevrets
in St-Coulomb in Northern
Brittany, France

By Leigh Wilson, Kings College London



#showusyourbraincell

Neuron



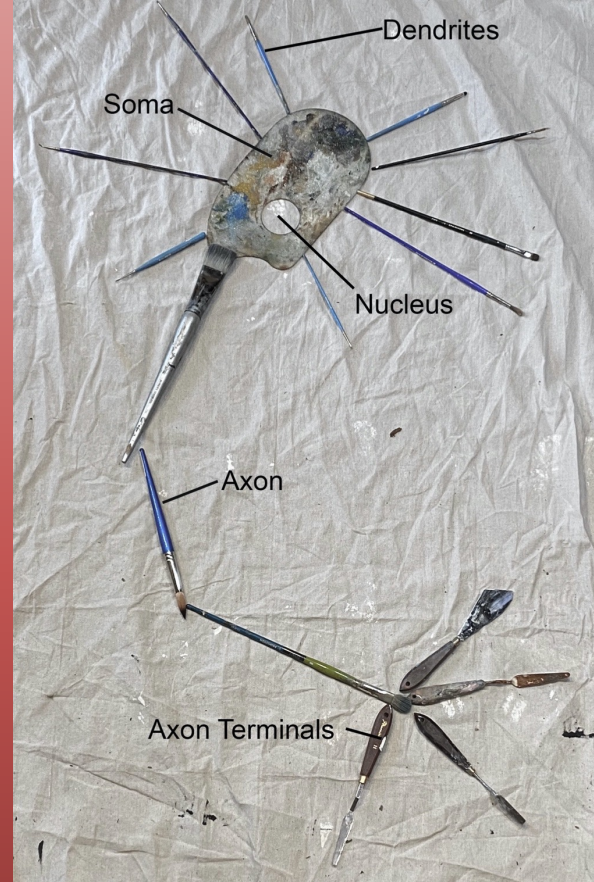
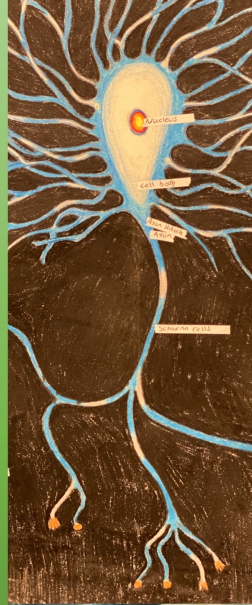
Dendrites

Soma

Axon

Axon terminals

#showusyourbraincell



Dendrites

Soma

Nucleus

Axon

Axon Terminals



#showusyourbraincell

Tuna Jig Neuron

#showusyourbraincell



Jigging is a type of fishing where your boat stays in place, or slowly drifts, while the line is jerked up and down to imitate the swimming of prey

In Oregon, tuna jigs are primarily used for trolling, a style of fishing where you pull hooks through water behind your boat

LEARN MORE
<https://Seagrant.oregonstate.edu>

By Amanda Gladics,
Oregon Sea Grant, OSU

Serotonin Flow



By Sai Kiersarsky

#showusyourbraincell

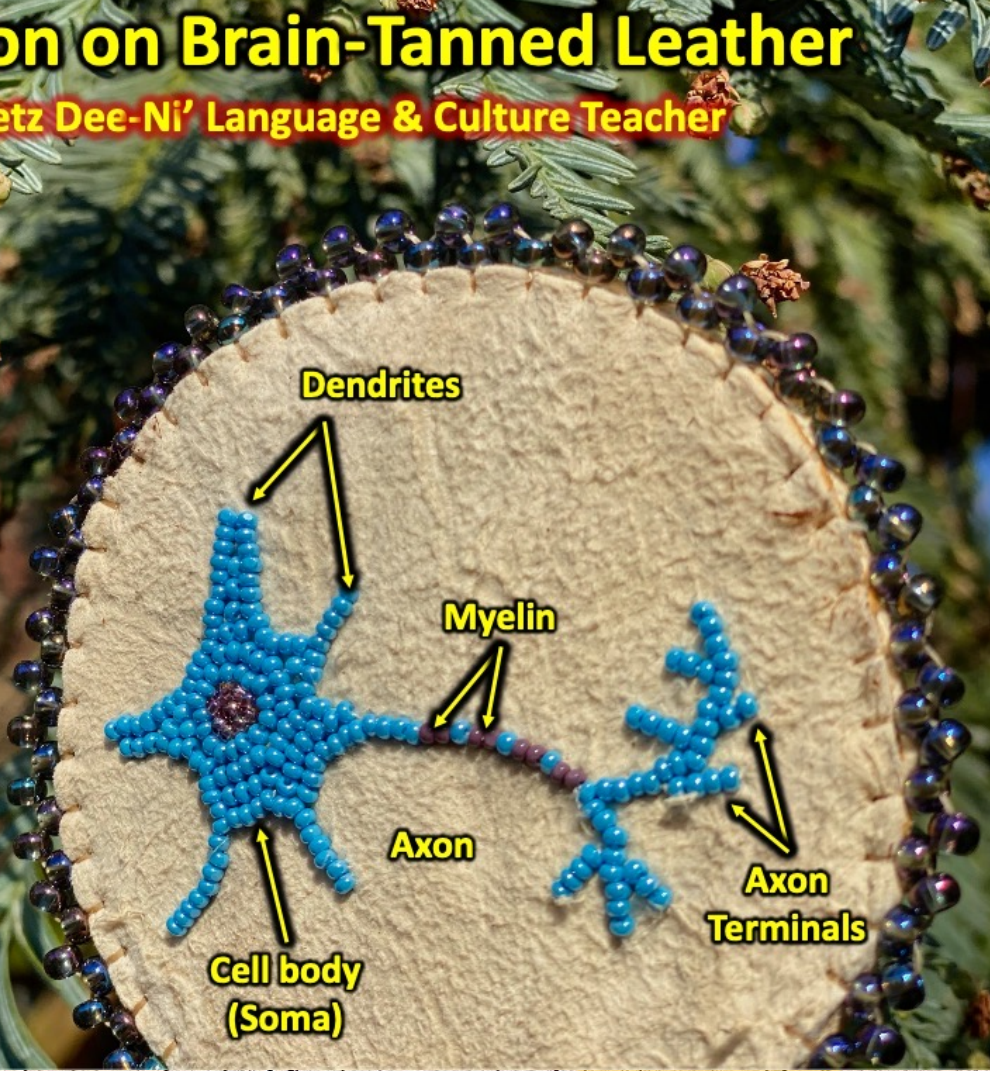
#showusyourbraincell

ANY BRAIN CELLS
Astrocyte
Pyramidal neuron
Photoreceptor
Inner hair cell
Nociceptor
Cerebellar granule cell
Meissner's corpuscle

Beaded Neuron on Brain-Tanned Leather

By Theresa Smith, Siletz Dee-Ni' Language & Culture Teacher

*"Every animal has
enough brains to tan
its own hide"*



#showusyourbraincell
nwnoggin.org



#showusyourbraincell

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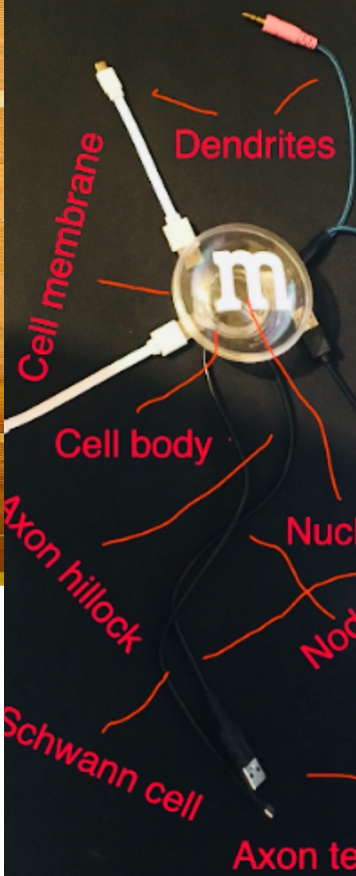
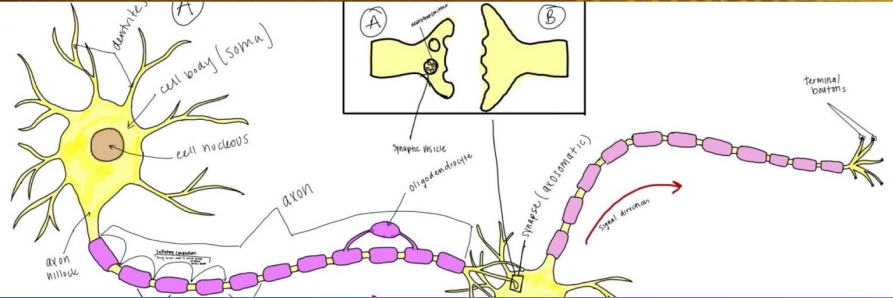
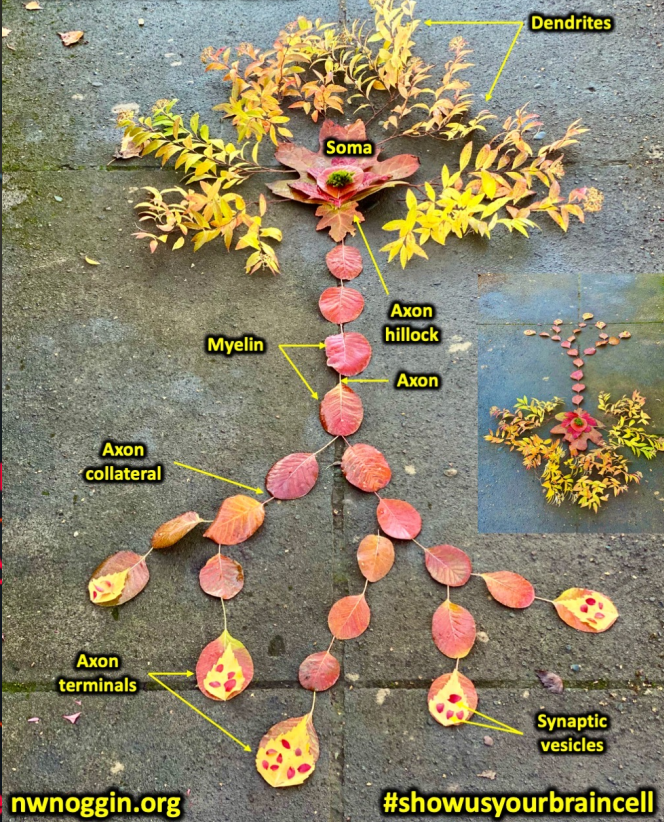
Gorgeous hand-crafted photoreceptors by artist Darrin Lane

nwnoggin.org

Neuron from the coat rack



Fall Neuron



nwnoggin.org

#showusyourbraincell

#showusyourbraincell

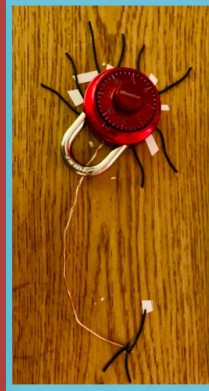
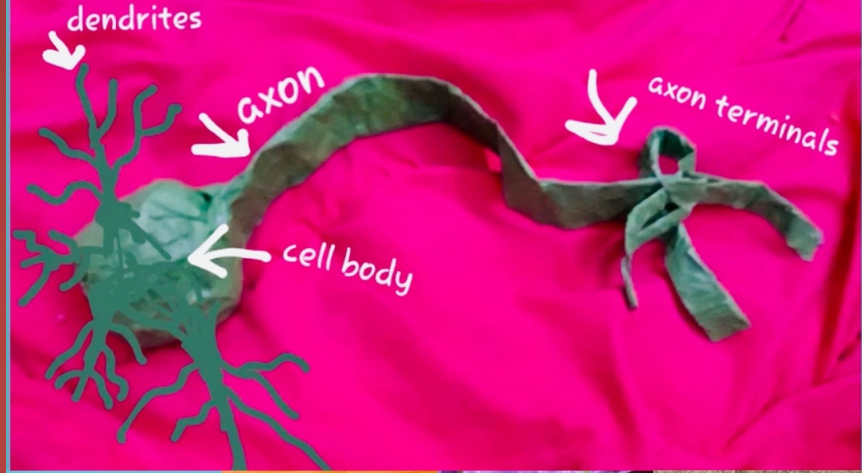
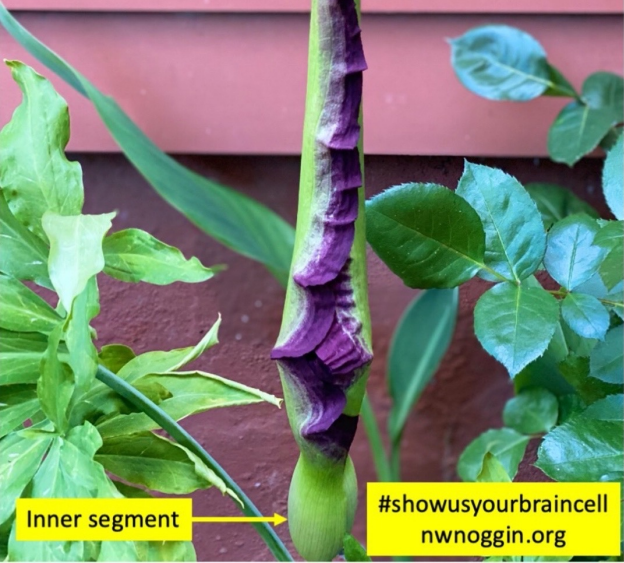
Dracunculus Vulgaris

Smells like rotting flesh
Pollinated by flies

Or...retinal cone cell?

Membranous disks
(sites of photopigment)

Outer segment



#showusyourbraincell

Taste afferent

Taste afferents are arranged like sections of an in **taste buds** on your tongue, with tiny **microvilli** poking out of **taste pores** for detecting chemicals (**tastants**) in food.



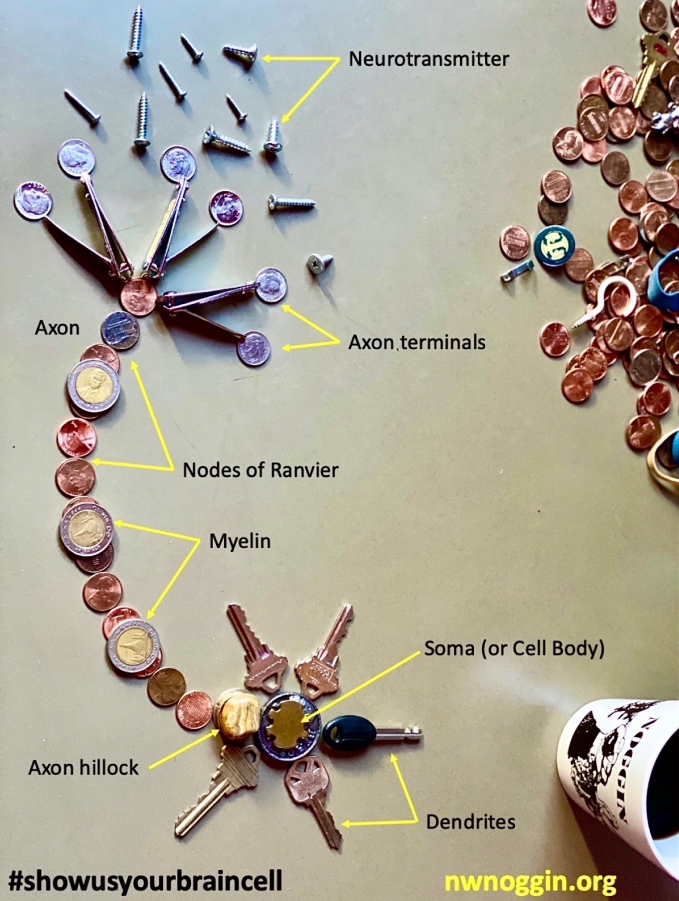
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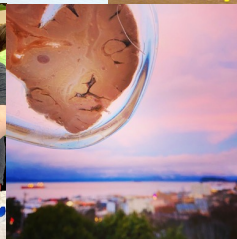
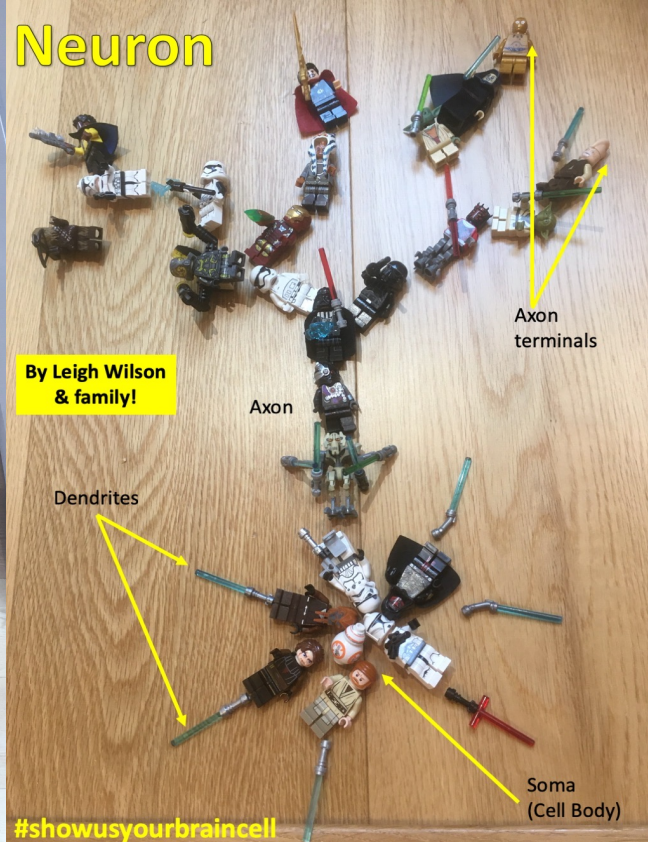
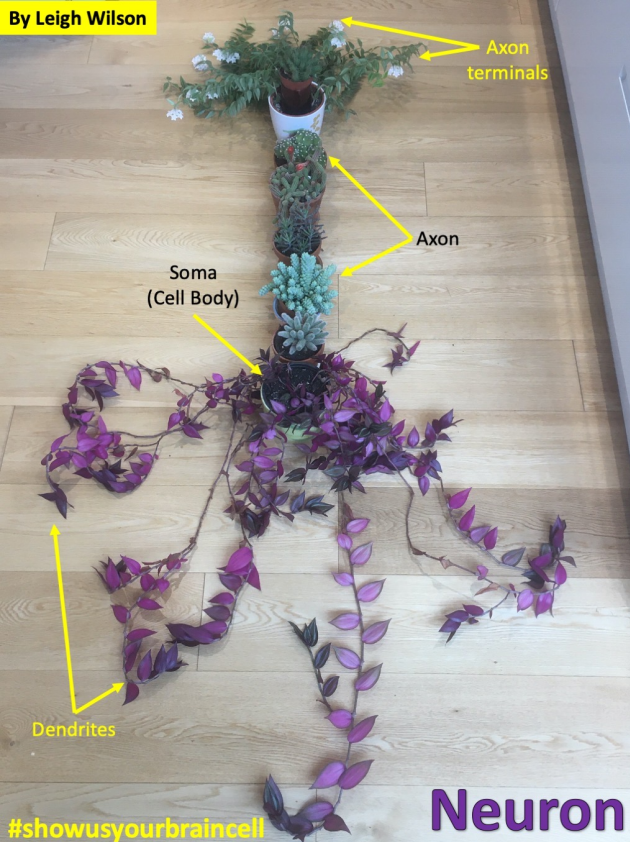
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#showusyourbraincell

Tear Gas Neuron

Portland Police collaborated with white nationalist gangs & used chemical weapons of war on citizens

Portland Police, county sheriffs, Oregon state troopers, federal DHS officers & armed members of regional hate groups **attacked Portlanders & press** with tear gas & impact munitions **for more than *5* months in 2020.**

Chemicals in tear gas cause and worsen respiratory ailments

Portland Police Bureau officers used force "more than 6,000 times" during "crowd-control events" from 5/29 - 11/15 -U.S. Department of Justice

These dendrites are clips from CS gas canisters deployed by the Portland Police, **under Police Commissioner & Mayor Ted Wheeler**, against people protesting ongoing racism and police violence against BIPOC Americans.

Portland, OR 2020

nwnoggin.org

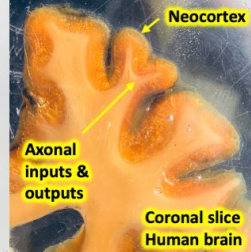
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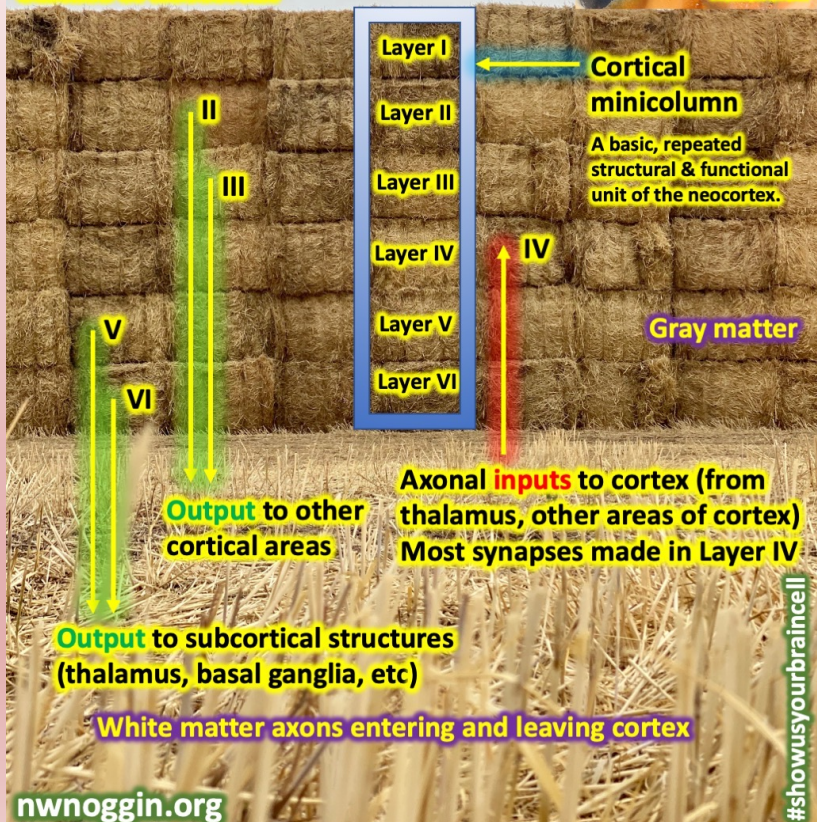
#showusyourbraincell

NEOCORTEX

From straw bales in Union County, Oregon



Surface of neocortex

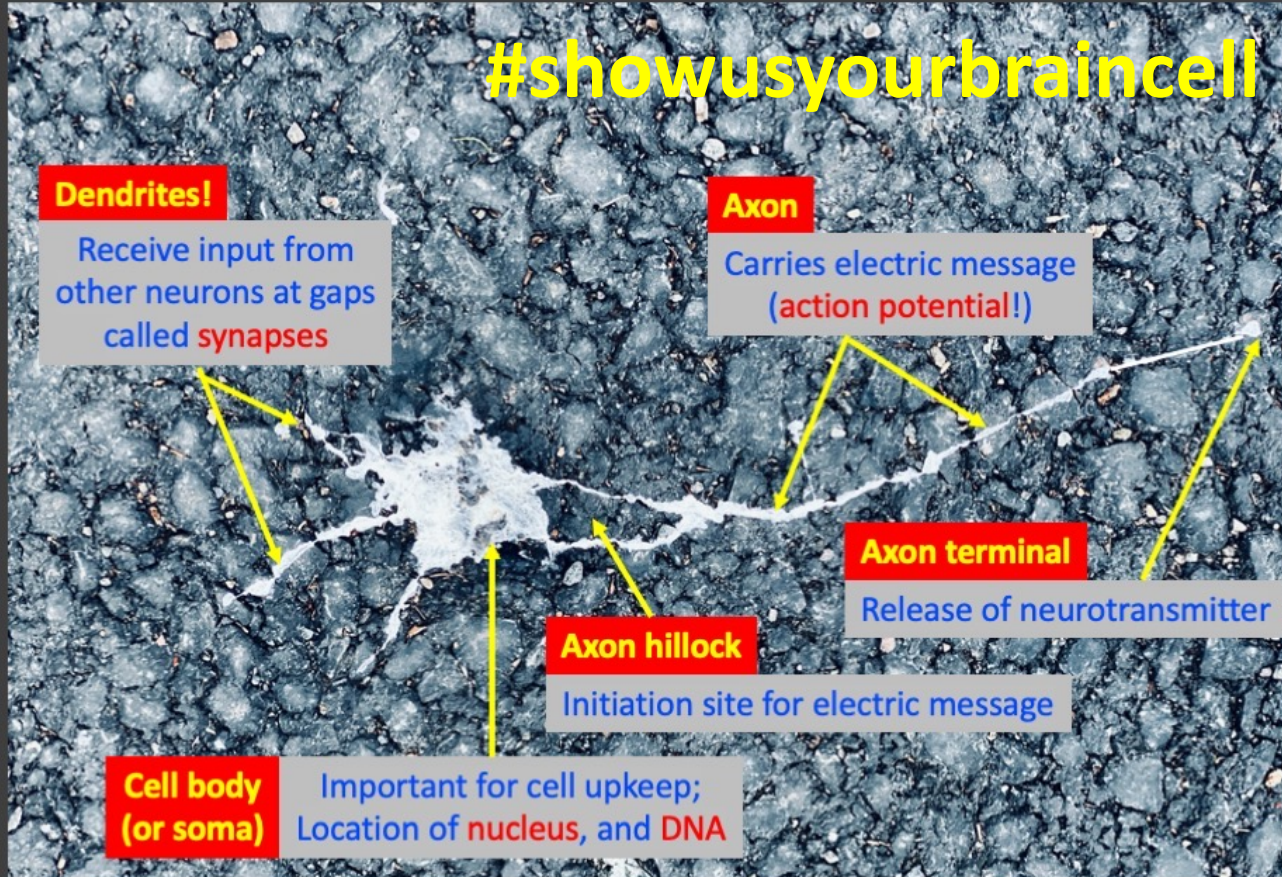


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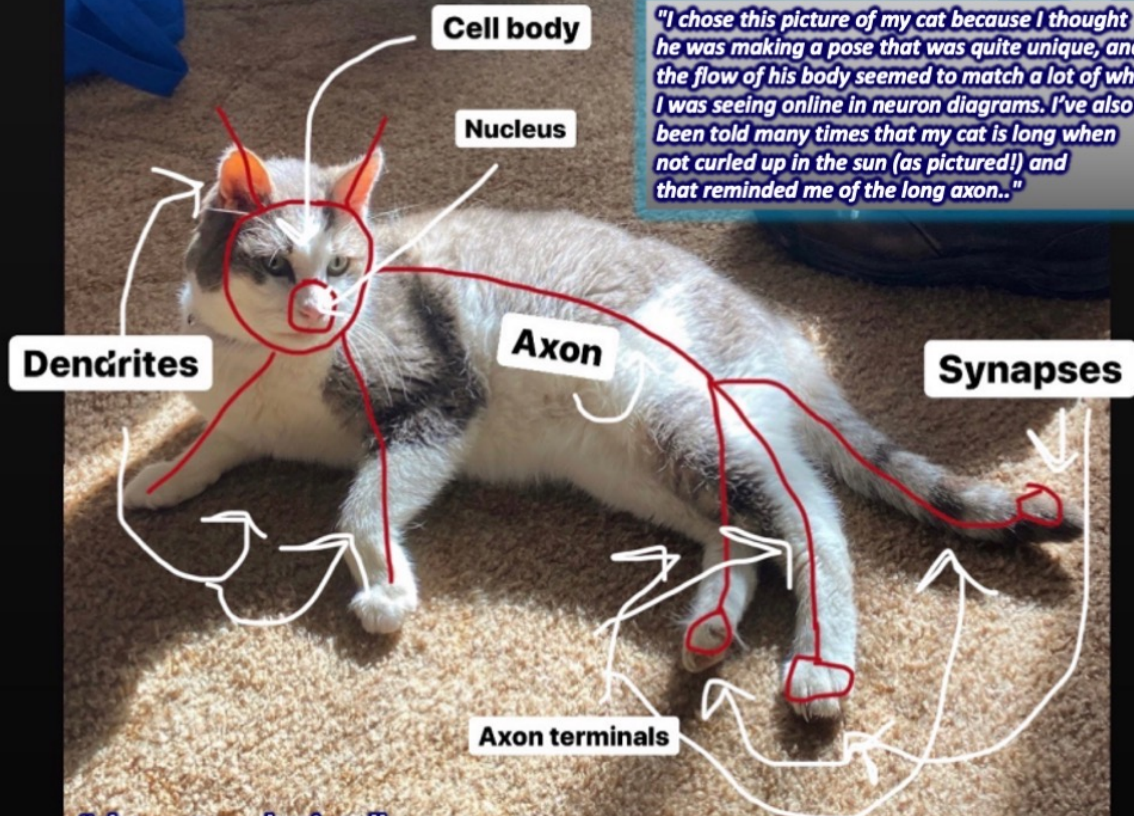
You can find neurons everywhere!

#showusyourbraincell



Everywhere!

Leah Hutchinson, Portland State University



"I chose this picture of my cat because I thought he was making a pose that was quite unique, and the flow of his body seemed to match a lot of what I was seeing online in neuron diagrams. I've also been told many times that my cat is long when not curled up in the sun (as pictured!) and that reminded me of the long axon.."

#showusyourbraincell

Ready for the Hersenolympiade!

SATURDAY, 2/12

2:15pm CET/5:15am Pacific!

"Brain"

"Olympics"



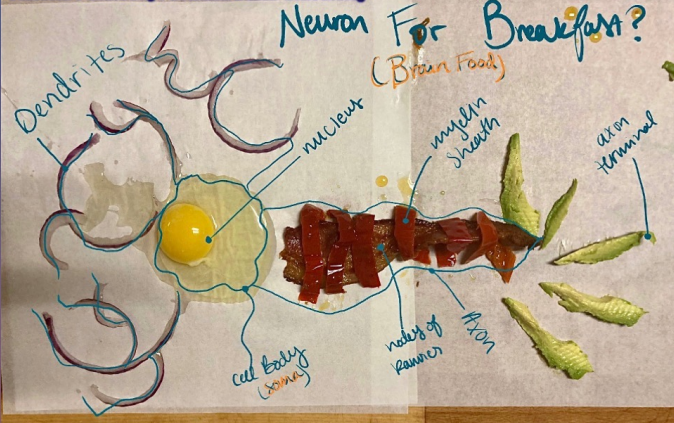
Northwest Noggin will discuss (and exhibit!) real brains, art and the intersection between the two. Join us to make your own found object brain cells and discover how the arts and neuroscience offer compelling insights into who we are.

DUTCH NEURON
By Austin Howard

nwnoggin.org

#showusyourbraincell

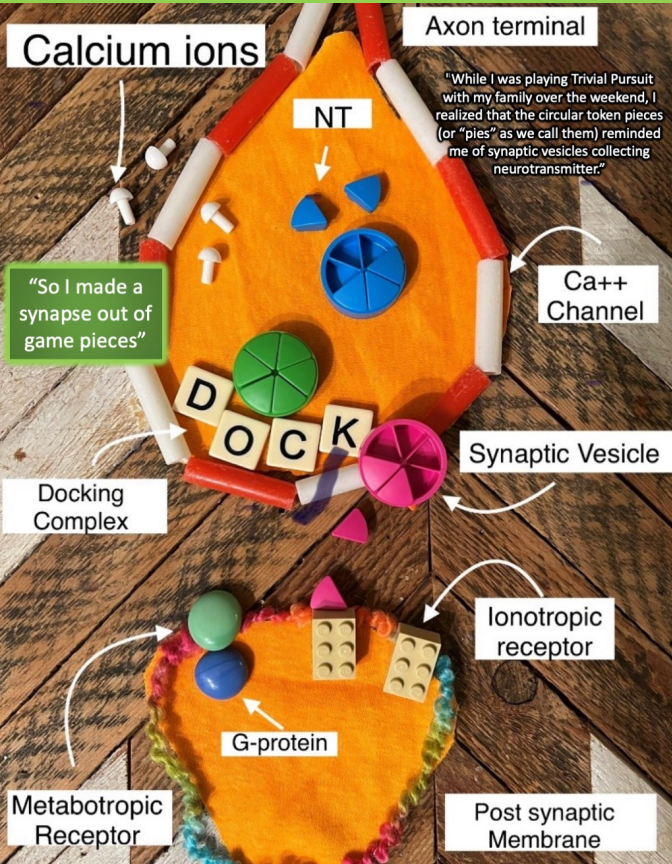
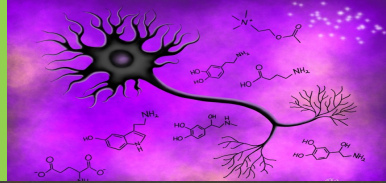
Victoria Peterson, Portland State University



"I've always kind of thought the Soma of a neuron looked like a cracked open egg, which I spend a LOT of time looking at because I work at a cafe where we make a lot of egg sandwiches..."

#showusyourbraincell

Make your own – AND SHARE!



#showusyourbraincell

Cris Keirsey @ Portland State University

#showusyourbraincell

