

# NORTHWEST NOGGIN

Café Scientifique,  
Sidmouth, Devon UK, June 2025

## ENGAGING BRAINS!

Bean on Bean

Leicester Square, London, UK

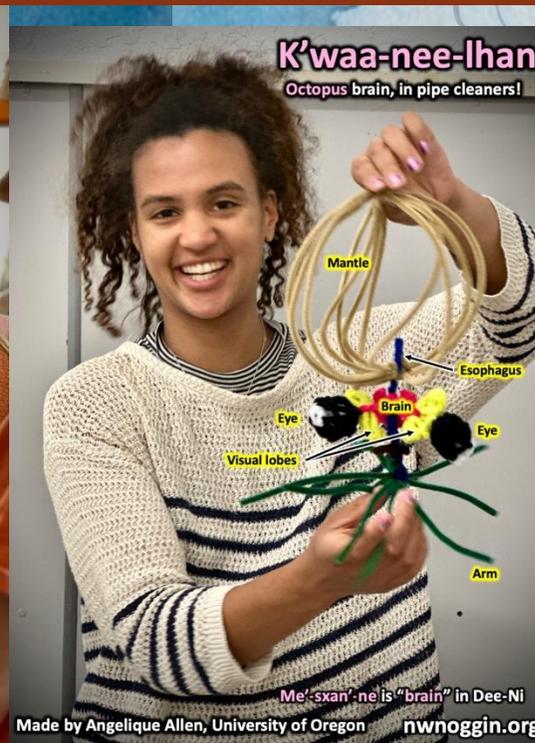


nwnoggin.org



K'waa-nee-lhan

Octopus brain, in pipe cleaners!



Me'-sxaan'-ne is "brain" in Dee-Ni

Made by Angelique Allen, University of Oregon nwnoggin.org



Teaching Matters

GO PLACES  
EXAMINE BRAINS  
ASK QUESTIONS  
MAKE ART



# ALL VOLUNTEER

THIRTEEN YEARS (SINCE 2012)!  
NO ADMISSION - NO TUITION - OPEN TO EVERYONE  
75,000+ PUBLIC\* K-12 STUDENTS/COMMUNITY MEMBERS  
LOCAL/NATIONAL/INTERNATIONAL COLLABORATORS



\* US public: free, underfunded schools



# GO PLACES

- WHERE STEM PROGRAMS DON'T GO
- WHERE MONEY AND RESOURCES DON'T GO
- K-12 PUBLIC SCHOOLS (UNDERFUNDED, FREE!)
- RURAL AND URBAN COMMUNITIES
- HOUSELESS YOUTH NONPROFITS
- CORRECTIONAL FACILITIES

Siletz, Amity & Willamina, OR  
Pop: 4000

Davenport, WA  
Pop: 1700

Astoria, OR  
Pop: 10,000

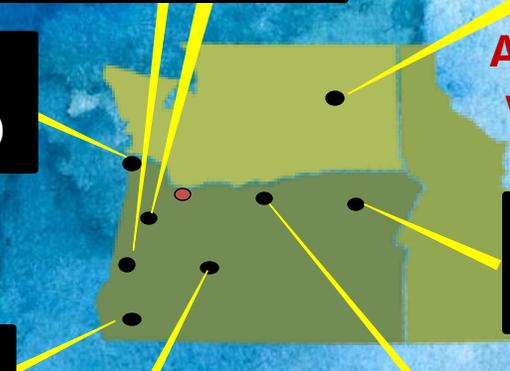
A few places we've been

La Grande, OR  
Pop: 13,000

Meservy Meadows, OR  
Pop: ~40

Sisters, OR  
Pop: 3081

Heppner & Lone, OR  
Pop: 1240



## NEW YEAR IN THE PARK



## 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.



## Noggins on the Coast



### Astoria-Megler Bridge

A four mile long steel cantilever through truss bridge connecting Oregon and Washington state

### Corpus Callosum

White matter (myelinated neuron axons) connecting the cortex in both our left and right hemispheres





**Future scientists, artists,  
doctors, researchers,...!** ❤️



**Teaching Matters** ❤️

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**Engagement, Questions, Learning** 😊



# LISTEN

-LIVED EXPERIENCES  
-RELEVANT KNOWLEDGE  
-SEEING OTHER PEOPLE



Heppner, OR



Knappa, OR

## HOMELESSNESS & THE BRAIN

Portland, OR  
Thurs, Oct 19th  
10am - 1pm



pearmentor gallery  
338 NW 6th Ave  
nwnoggin.org pearmentor.org

STREET KIDS  
ART  
NEURO-  
SCIENCE

## Noggins + NeuroChem visit Gaza



**Soma**  
Cell body – جسم الخلية

**Dendrite**  
Finger – أصابع  
Snakeskin – جلد الأفعى  
Ear – أذن

**Axon**  
Spine – محور عصبي  
Stem – جذع  
Rope – حبل

**Axon terminal**  
Roots – جذور  
Mouth – فم

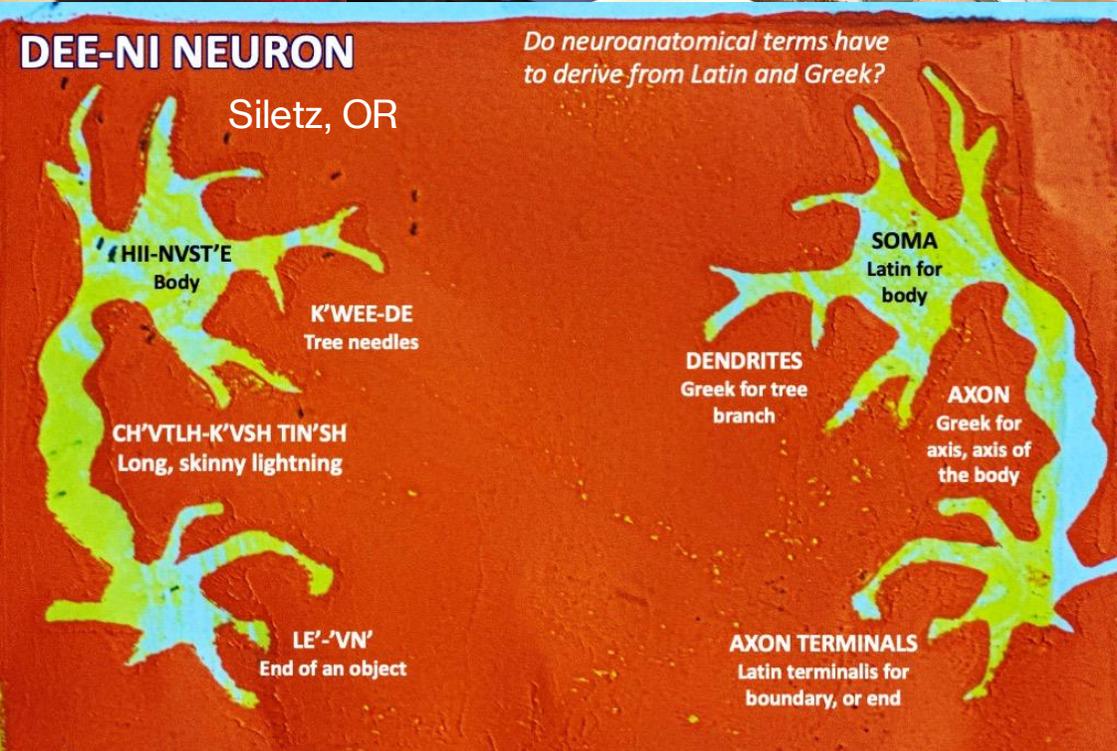
#showusyourbraincell

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## DEE-NI NEURON

Siletz, OR

Do neuroanatomical terms have to derive from Latin and Greek?



**HII-NVST'E**  
Body

**K'WEE-DE**  
Tree needles

**CH'VTLH-K'VSH TIN'SH**  
Long, skinny lightning

**LE'-VN'**  
End of an object

**SOMA**  
Latin for body

**DENDRITES**  
Greek for tree branch

**AXON**  
Greek for axis, axis of the body

**AXON TERMINALS**  
Latin terminalis for boundary, or end

#showusyourbraincell

nwnoggin.org

# Why do we throw up?

New Post!

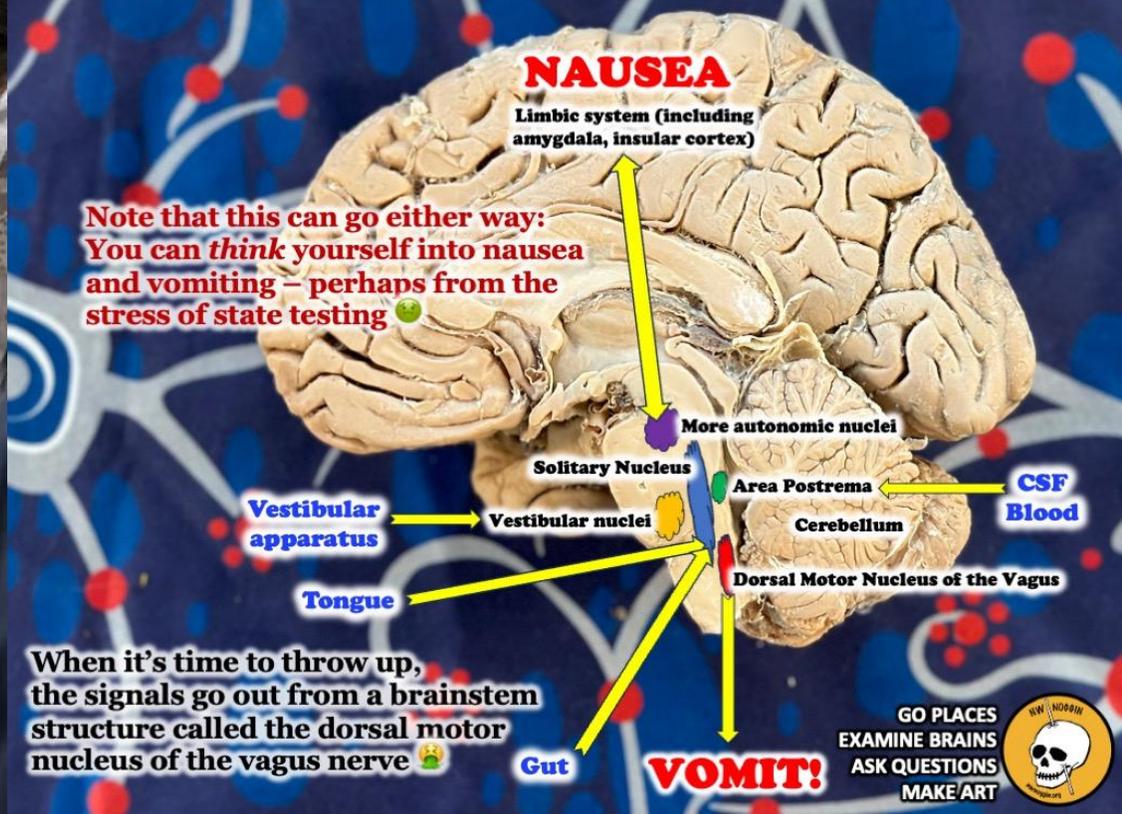
"I don't like testing, and sometimes it makes me throw up. Why do we throw up?" - Third grade student

Important questions from elementary school!



## Vomiting and Nausea in the Brain

The brainstem receives inputs from the gut (including the microbiome) and tongue in the solitary nucleus, the area postrema samples the blood and cerebrospinal fluid, the vestibular nuclei and cerebellum respond to signals from the vestibular apparatus, and additional autonomic nuclei further integrate this information and share it with higher limbic and cortical regions that generate feelings, including nausea...



When it's time to throw up, the signals go out from a brainstem structure called the dorsal motor nucleus of the vagus

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# SHARE STORIES

- EMPOWER NEW VOICES
- BROADEN THE CONVERSATION
- MAKE PUBLIC INVESTMENT IN RESEARCH RELEVANT
- INVITE NEW PARTICIPANTS, PERSPECTIVES & **BRAINS**



***“The youth had an AMAZING time on Friday. They were beaming when we left and told me that’s the most fun they have had in a really long time. Thank you so much for providing such a rewarding outlet for them! 🌟” – Project Pooch***



Portland, OR



Astoria, OR

**MacLaren Youth Correctional Facility**

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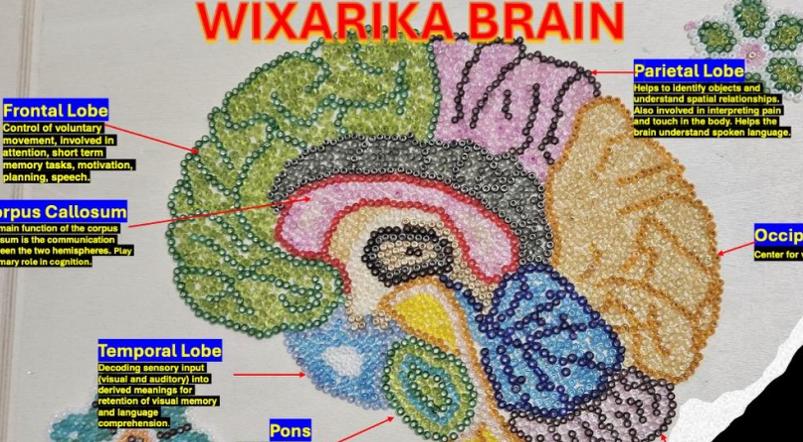


# MAKE ART

- ENGAGEMENT
- PERSONAL RELEVANCE
- SELF-AWARENESS AND **EMPATHY**



## WIXARIKA BRAIN



The diagram shows a cross-section of a human brain with various lobes and structures highlighted in different colors and labeled with text boxes. The labels include: Frontal Lobe (Control of voluntary movement, involved in attention, short term memory tasks, motivation, planning, speech.), Corpus Callosum (main function of the corpus callosum is the communication between the two hemispheres. Play primary role in cognition.), Temporal Lobe (Receiving sensory input (visual and auditory) into derived meanings for retention of visual memory and language comprehension.), Pons (Air production), Parietal Lobe (Helps to identify objects and understand spatial relationships. Also involved in interpreting pain and touch in the body. Helps the brain understand spoken language.), and Occipital (Center for visual).

*"Wixarika art is made by indigenous people from the states of Nayarit, Jalisco, and Sinaloa in Mexico. It consists of forming figures with 'chaquira' beads one by one, using bright colors. Among the multiple Wixarika designs are peyote cactus, which is a stimulant that indigenous people use in rituals. I decided to do a Wixarika brain so I could easily remember the lobes, and the internal parts of the brain. Additionally, I wanted to connect part of my culture with what I have learned in this wonderful class." — Cristina Gomez Aguilar, Portland State University*





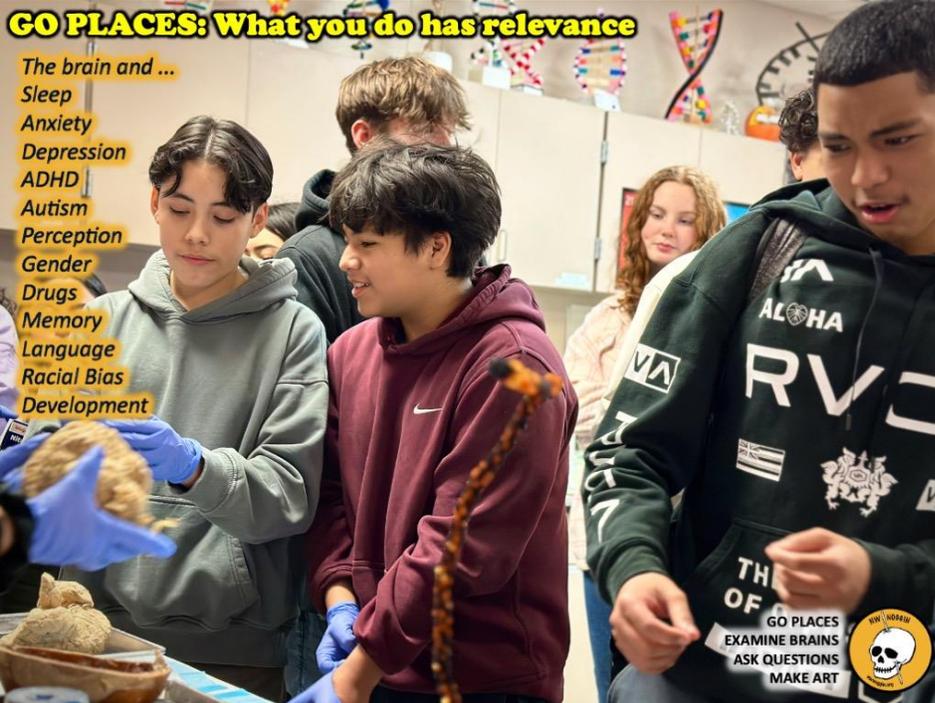
# INFORM POLICY

- RESEARCH TOPICS ARE POPULAR!
- INTERDISCIPLINARY/STEAM APPROACHES WORK
- 1. SCHOOL START TIMES FOR ADOLESCENTS
- 2. PERMANENT STANDARD TIME
- 3. ECONOMIC DEVELOPMENT



## GO PLACES: What you do has relevance

- The brain and ...
- Sleep
- Anxiety
- Depression
- ADHD
- Autism
- Perception
- Gender
- Drugs
- Memory
- Language
- Racial Bias
- Development



**Healthy start times**

**VANCOUVER PUBLIC SCHOOLS VPS**

**What is changing?**

We are changing our schools' start times schedule next year based on learnings from our community feedback as well as the most current research about adolescent development. We plan to solidify our bell schedules and announce the official new times before the last day of school on June 20, 2023.

# Federal and State Governments Took the Brains Out of Biology!

WHERE ARE THE BRAINS IN K-12 PUBLIC CLASSROOMS? KIDS BENEFIT FROM AND WANT TO LEARN MORE ABOUT NEUROSCIENCE

## Fourth Grade

- 4-LS1-1. Construct an argument that plants and animals have internal and external structures that function to support survival, growth, behavior, and reproduction.** [Clarification Statement: Examples of structures could include thorns, stems, roots, colored petals, heart, stomach, lung, brain, and skin.] [Assessment Boundary: Assessment is limited to macroscopic structures within plant and animal systems.]
- 4-LS1-2. Use a model to describe that animals receive different types of information through their senses, process the information in their brain, and respond to the information in different ways.** [Clarification Statement: Emphasis is on systems of information transfer. ] [Assessment Boundary: Assessment does not include the mechanisms by which the brain stores and recalls information or the mechanisms of how sensory receptors function.]

We need better standards:  
Brains only mentioned in 4<sup>th</sup> grade!



**NEW POST**

Synapses to Shares  
By Zach Salcido @ PSU

***Social Media...  
...and the brain!***

**National Endowment for the Humanities**



A group of diverse children and an adult woman are gathered around a table, looking at something off-camera with interest and excitement. The woman on the left has a wide, open-mouthed smile. The children, including a boy in a grey vest and a girl in a green hoodie, also show various expressions of curiosity and engagement. The background is a brightly lit indoor space with other people and a blue wall.

# BRAIN RESEARCH IS COMPELLING

**\*PEOPLE ARE INTERESTED**

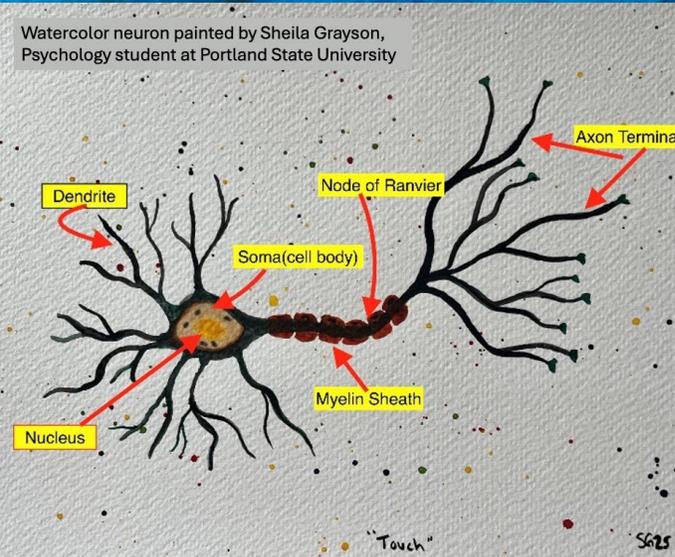
**\*THEY WANT TO HEAR ABOUT IT, AND BE INCLUDED**

# ENGAGING BRAINS

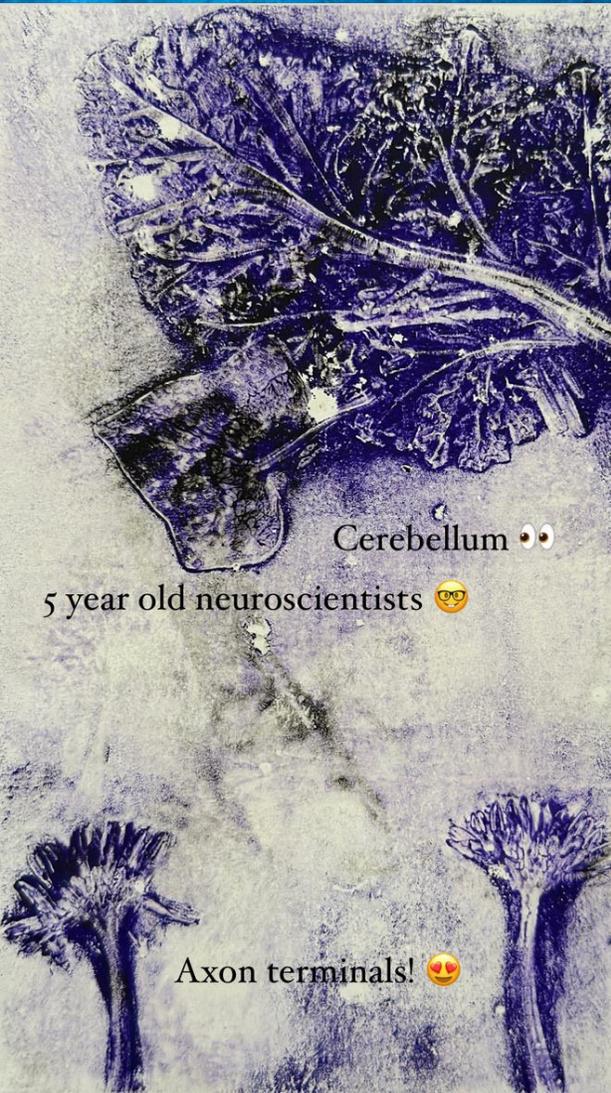
*If you're motivated, intrigued, curious, engaged, your brain is more plastic.*

CHANGE YOUR ENVIRONMENT: GO PLACES  
WELCOME NEW BRAINS, FROM MORE BACKGROUNDS  
LISTEN TO WHAT YOUNG PEOPLE HAVE TO SAY  
PROVIDE RESOURCES AND ENRICHMENT  
PROMOTE ADULT PLASTICITY

**MAKE ART**



# LET'S MAKE SOMETHING!



Cerebellum 🧠

5 year old neuroscientists 🧐

Axon terminals! 🧐

