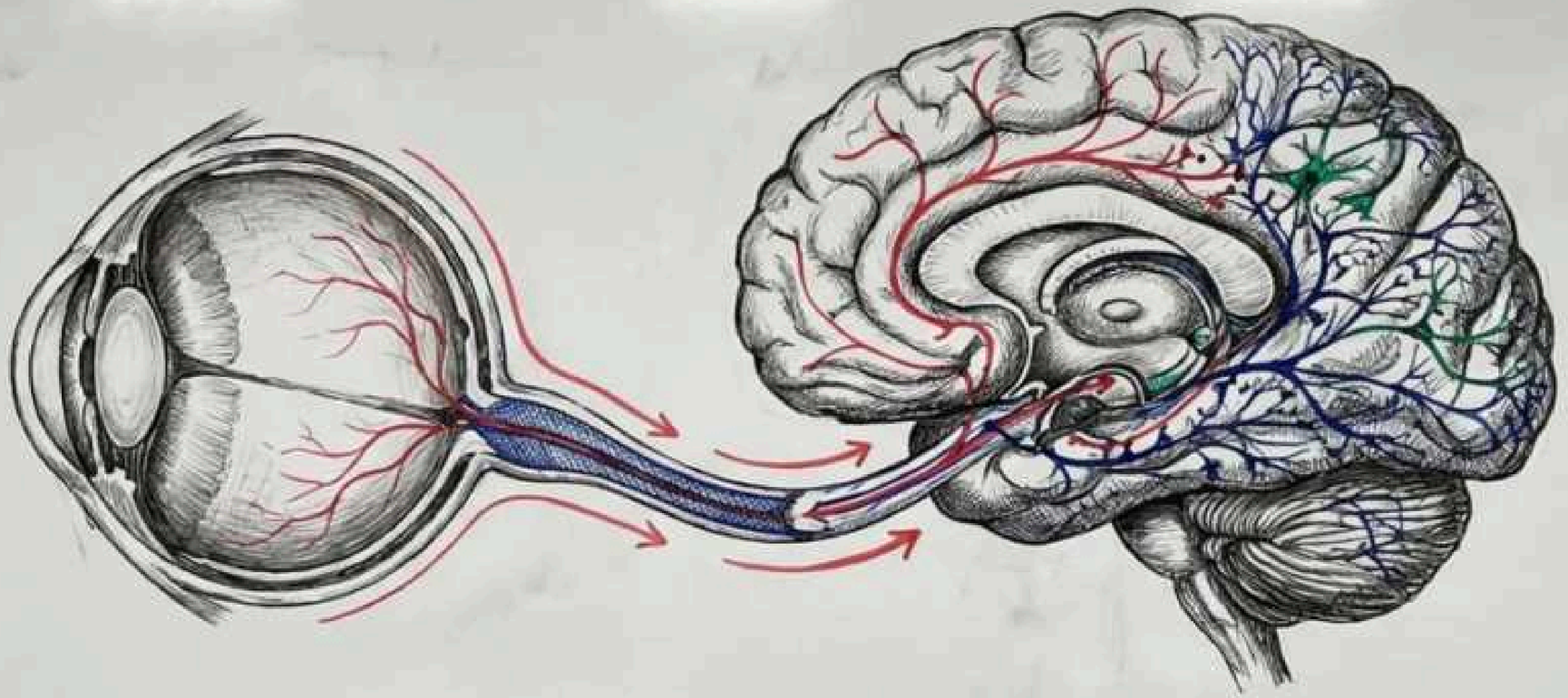
2.1 Biological Basis of Behaviour

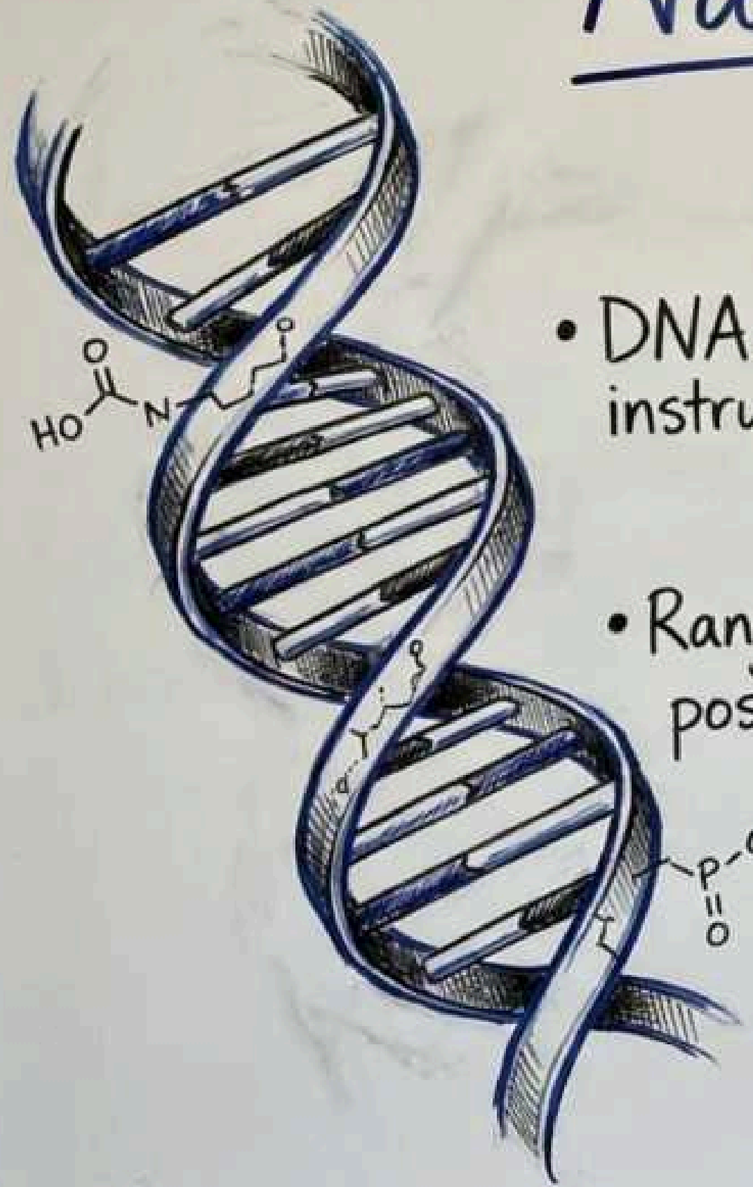


Light triggers cells → Nerve signals → Behaviour & Experience

Gemini Notebook

2.2

Nature and Nurture



- DNA instructions
- Range of possibilities

Work Together

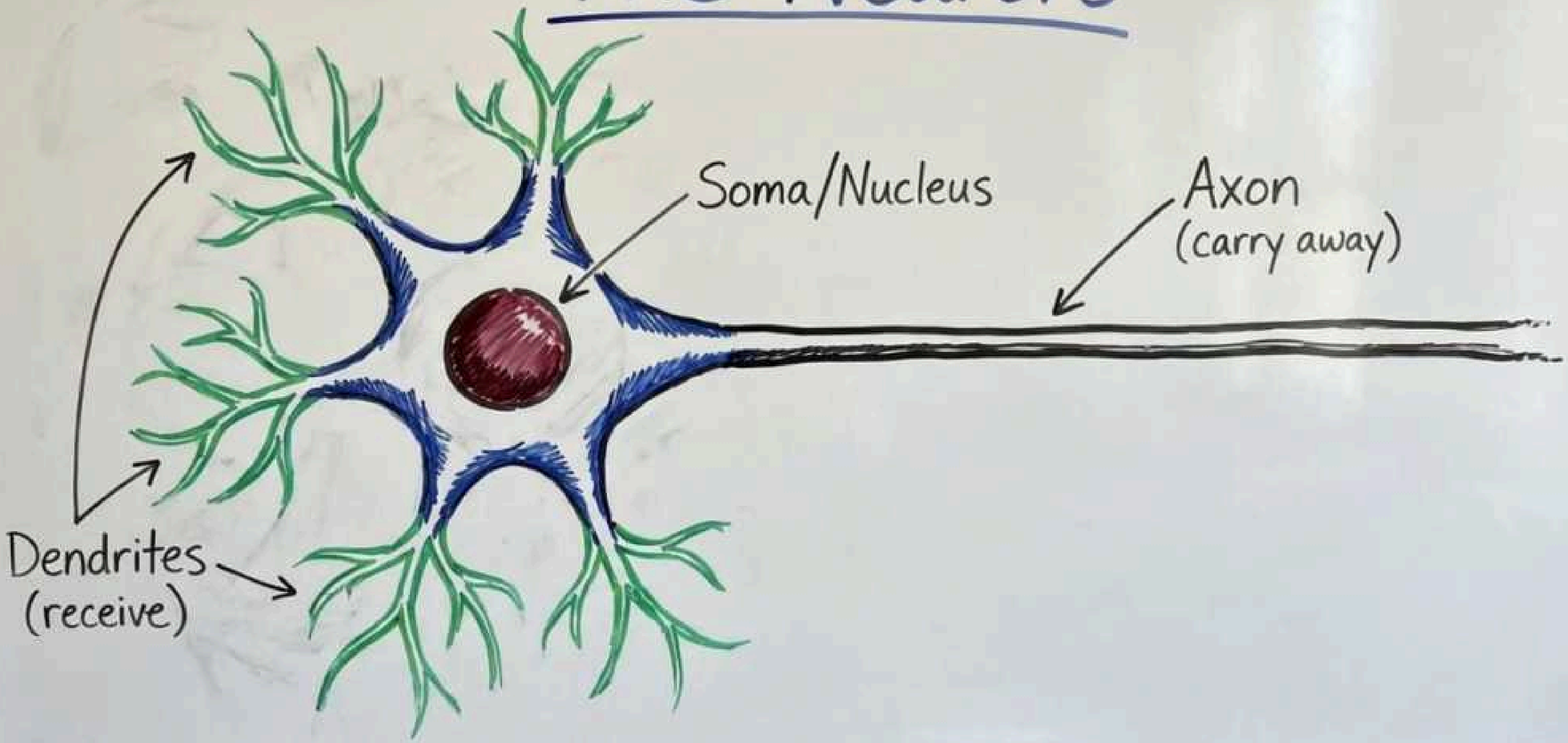


- Environmental influence

Gemini Notebook

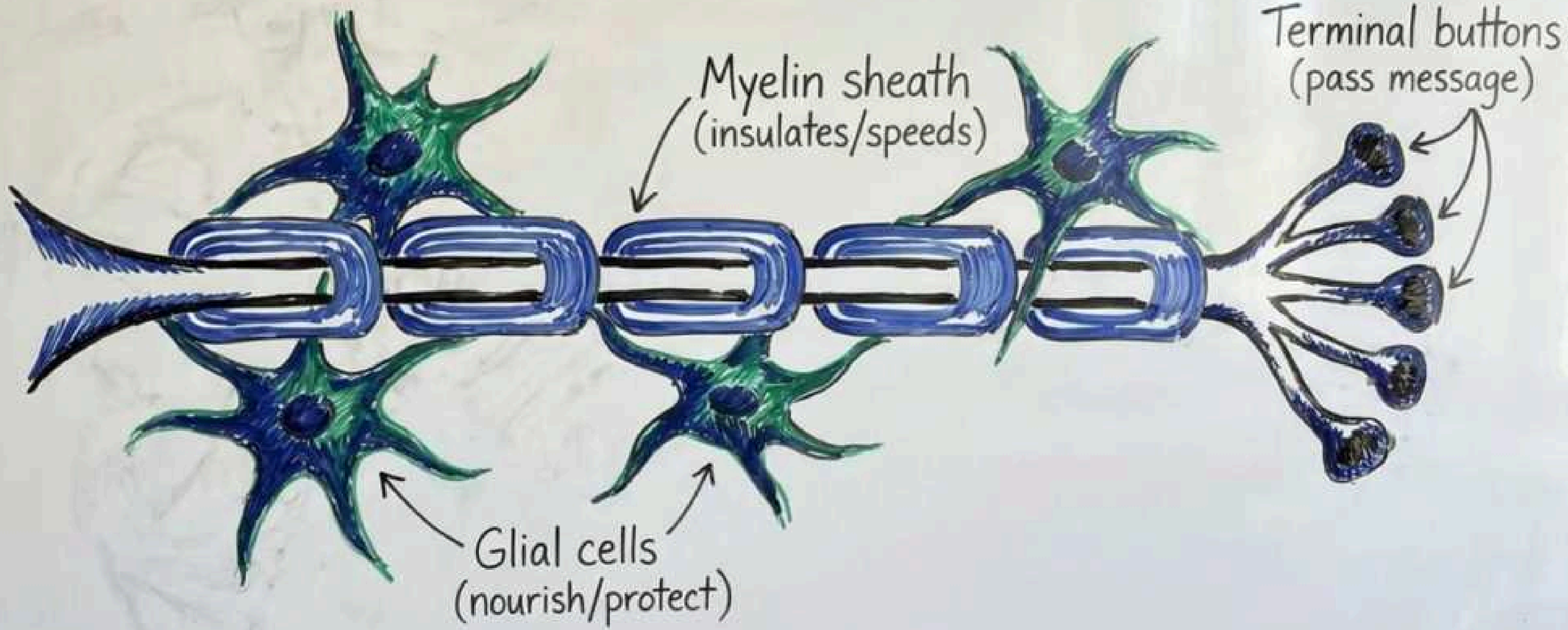
2.3

The Neuron



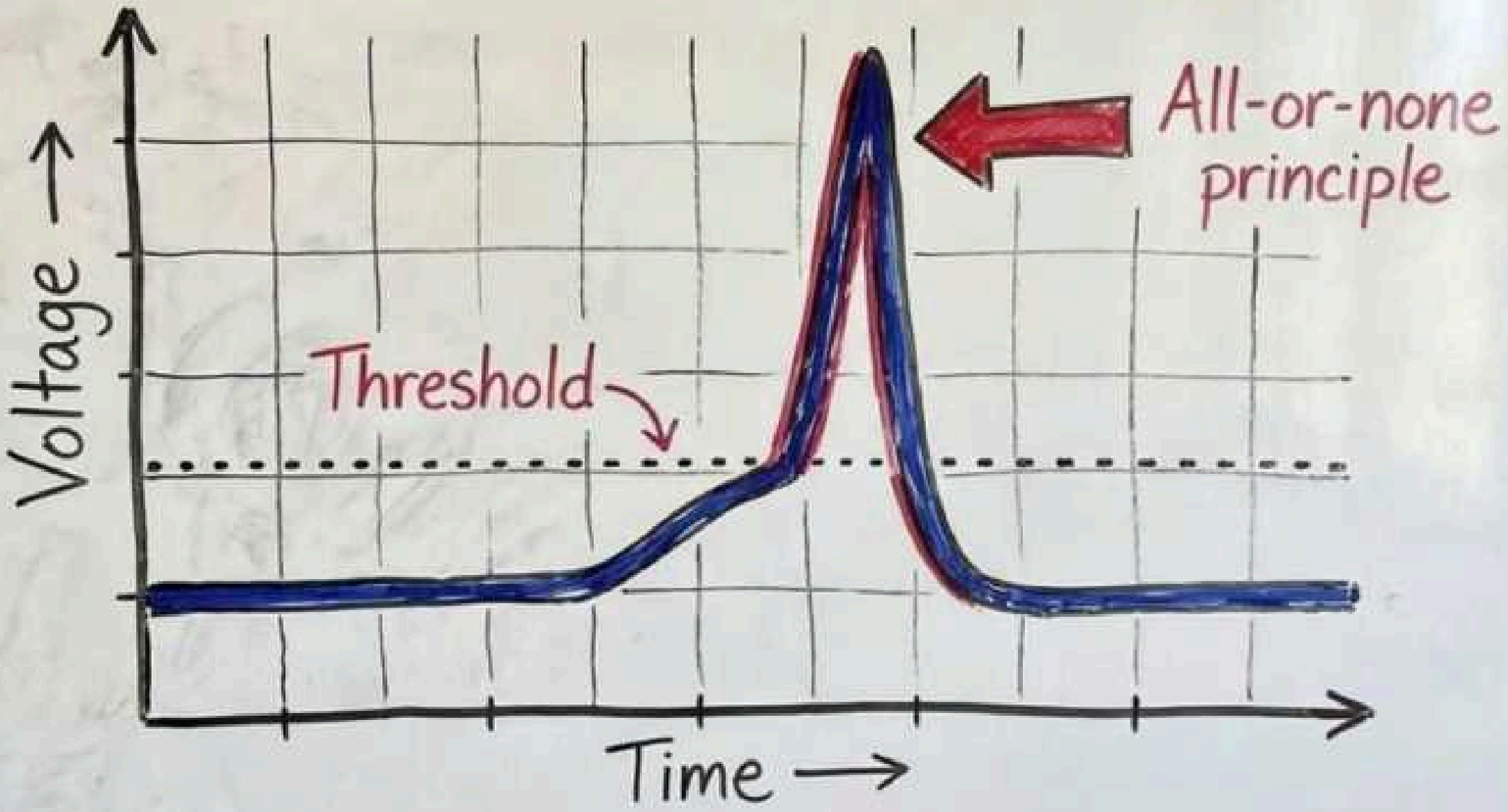
2.4

Transmission & Support



2.5

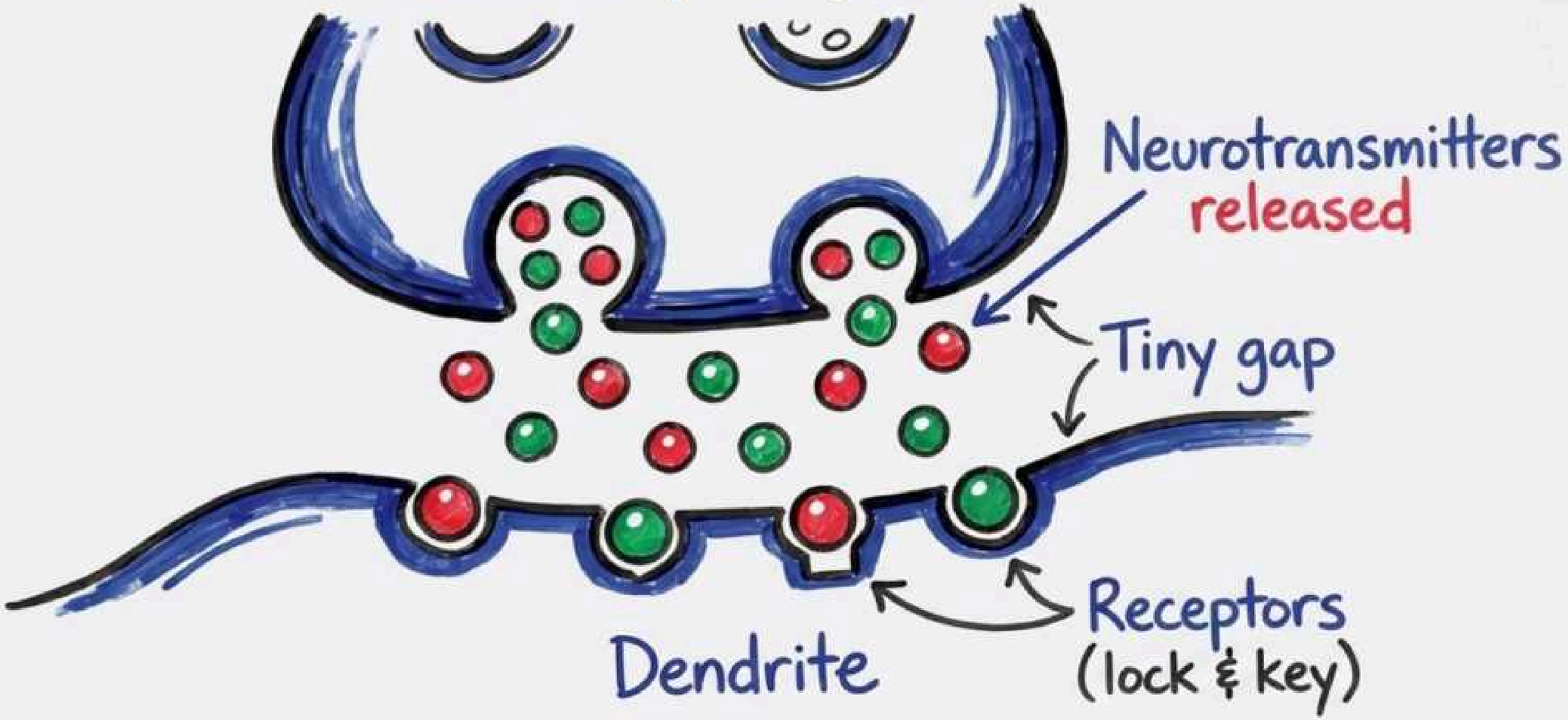
Action Potential



- Electrical impulse

2.6

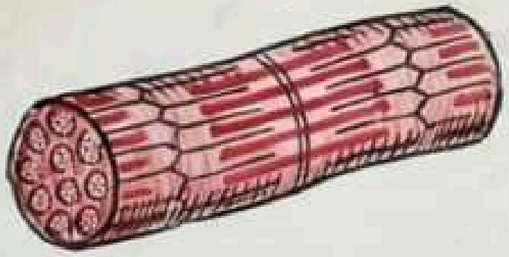
The Synapse



2.7

Chemical Messengers

Acetylcholine (movement/memory)



Dopamine (reward)



Serotonin (mood)



GABA (calms)



Gemini Notebook

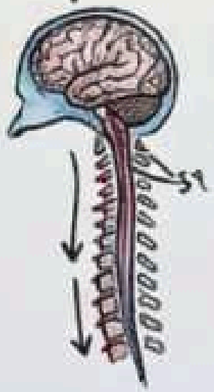
2.8

Nervous System Divisions

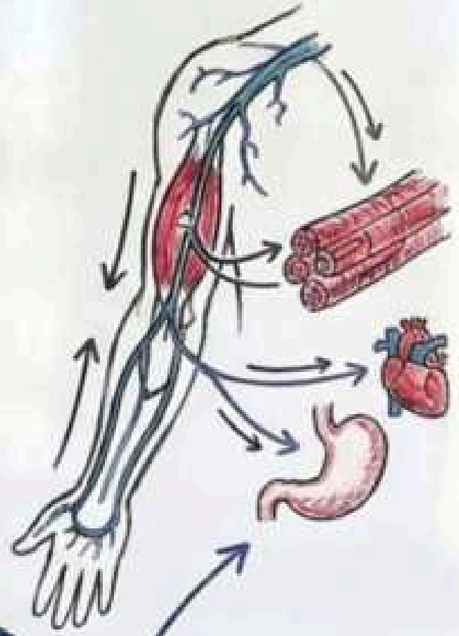
Nervous System

Central

(Brain & Spinal Cord)



Peripheral



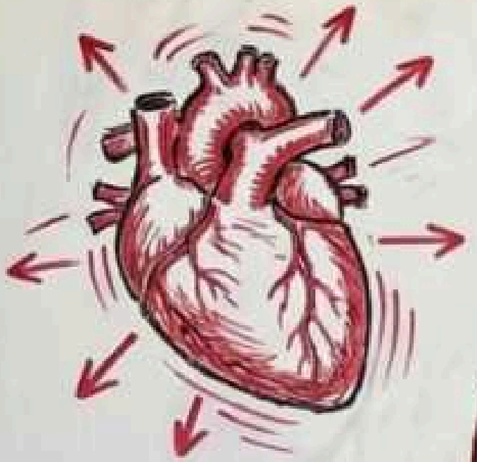
Somatic (Voluntary)

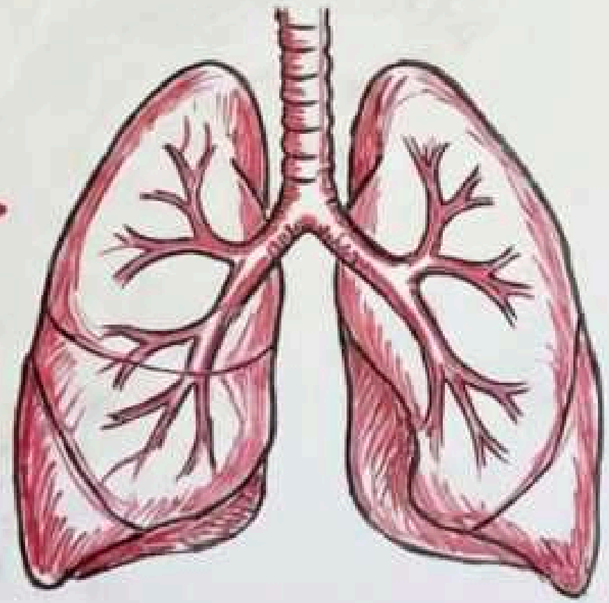
Autonomic (Automatic)

2.9

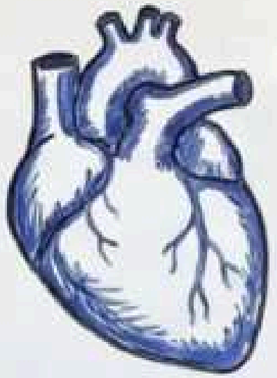
Autonomic Subdivisions

Sympathetic
(Fight-or-flight)





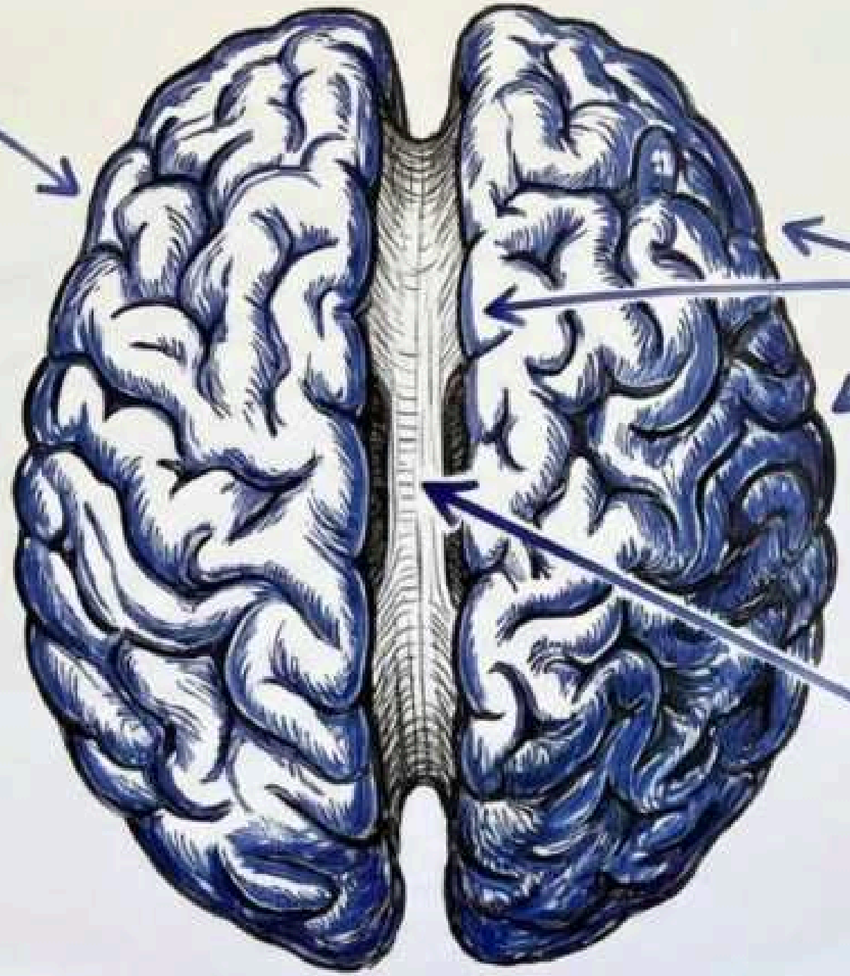
Parasympathetic
(Rest & digest)





2.10

Cerebral Cortex



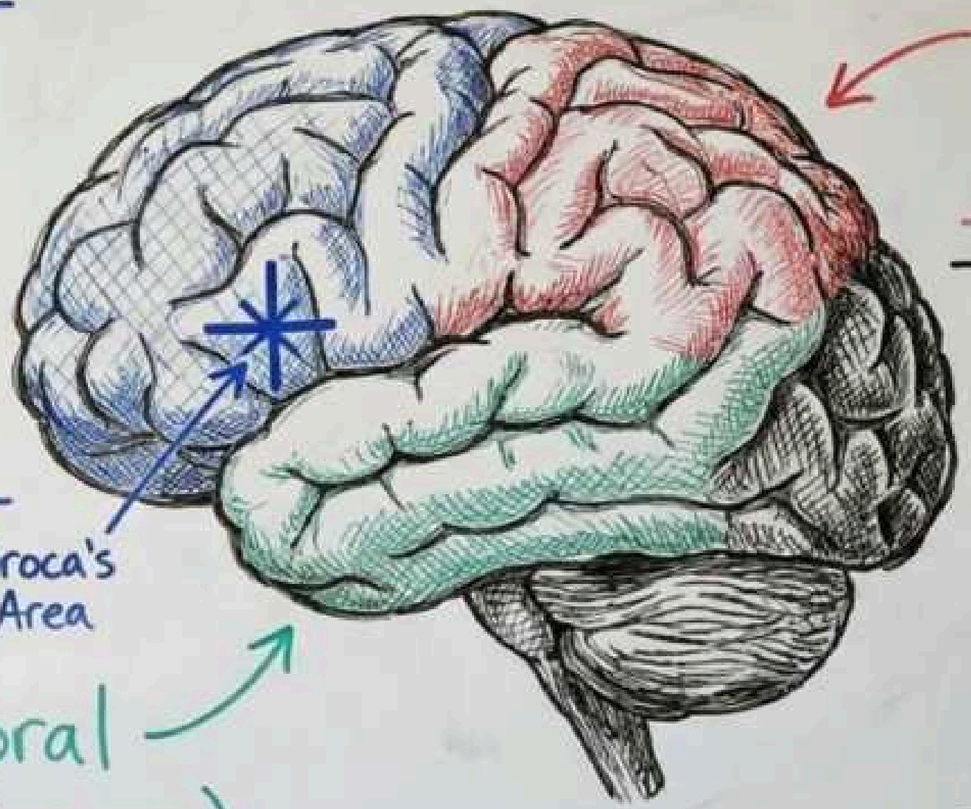
Wrinkled outer layer

Left & Right Hemispheres

Corpus Callosum

2.11

Four Lobes



Frontal
(planning/speech)

Broca's Area

Temporal
(hearing/language)

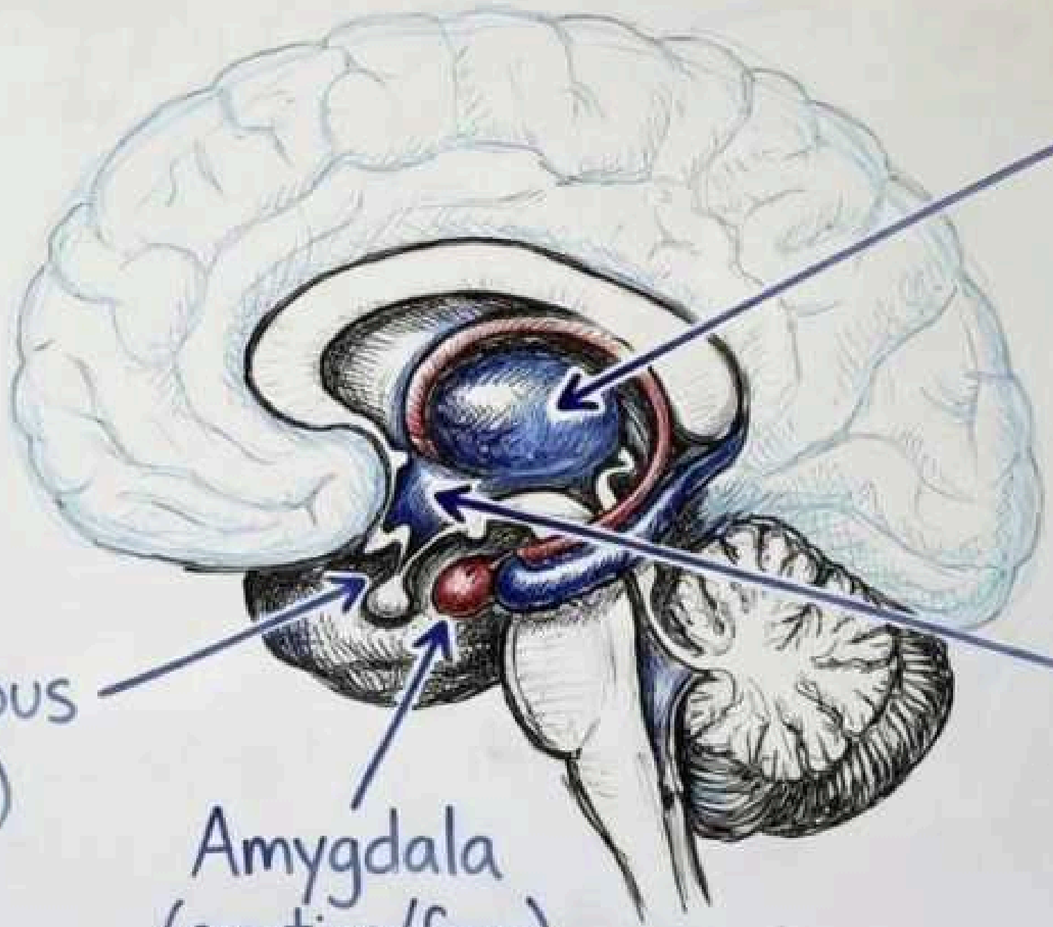
Parietal
(touch)

Occipital
(vision)

Gemini Notebook

2.12

Limbic System



Thalamus
(sensory relay)

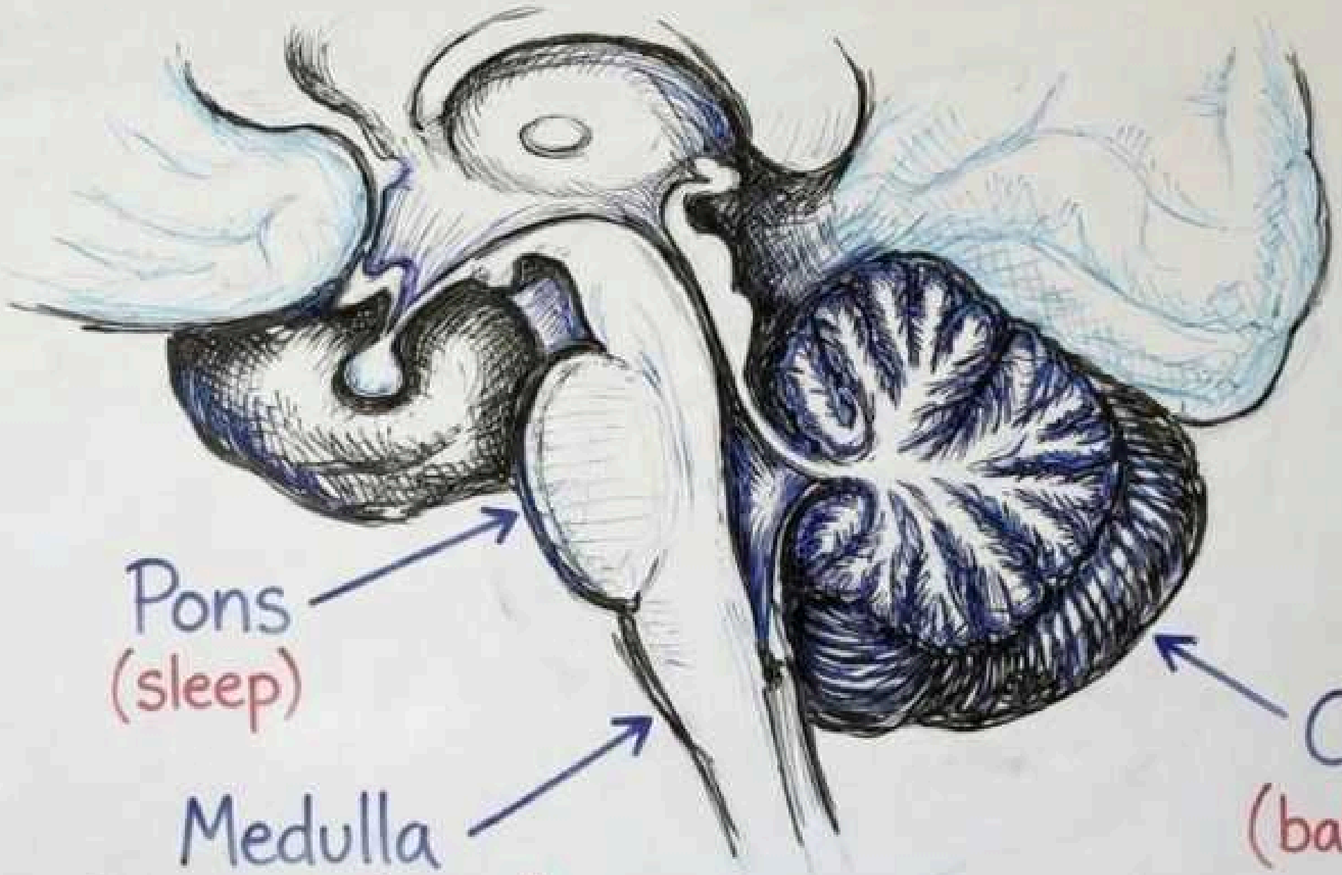
Hippocampus
(memory)

Amygdala
(emotion/fear)

Hypothalamus
(regulation)

2.13

The Hindbrain



Pons
(sleep)

Medulla
(breathing/heart)

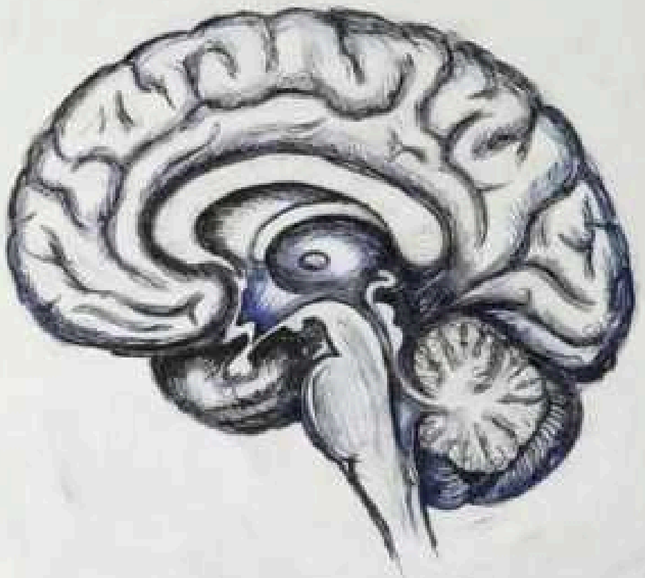
Cerebellum
(balance/movement)

2.14

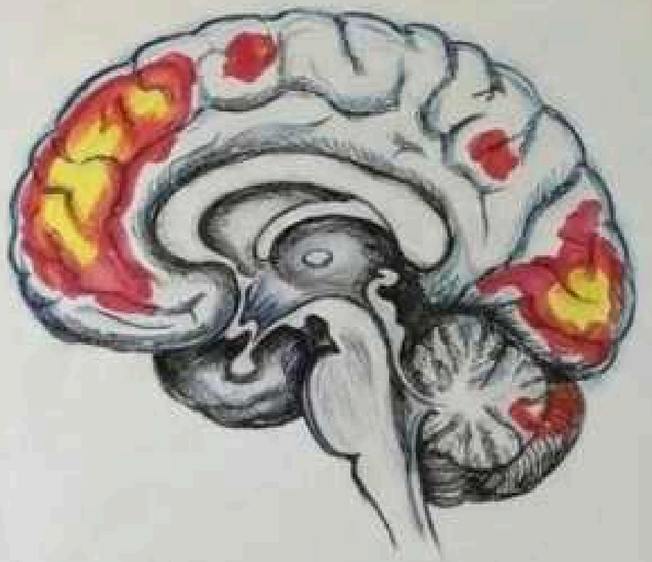
Studying the Brain



EEG
(electrical)



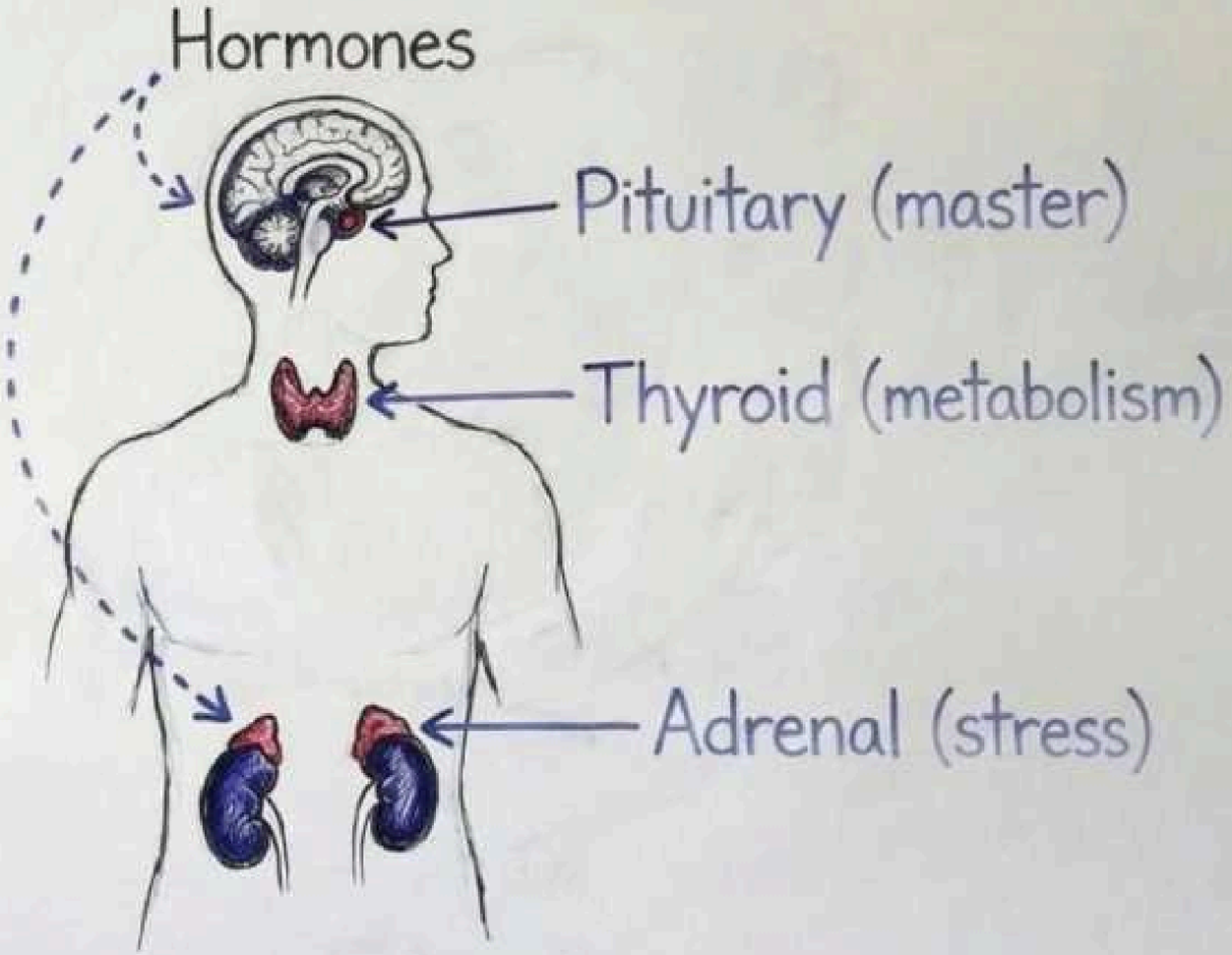
MRI
(structure)



fMRI & PET
(activity)

2.15

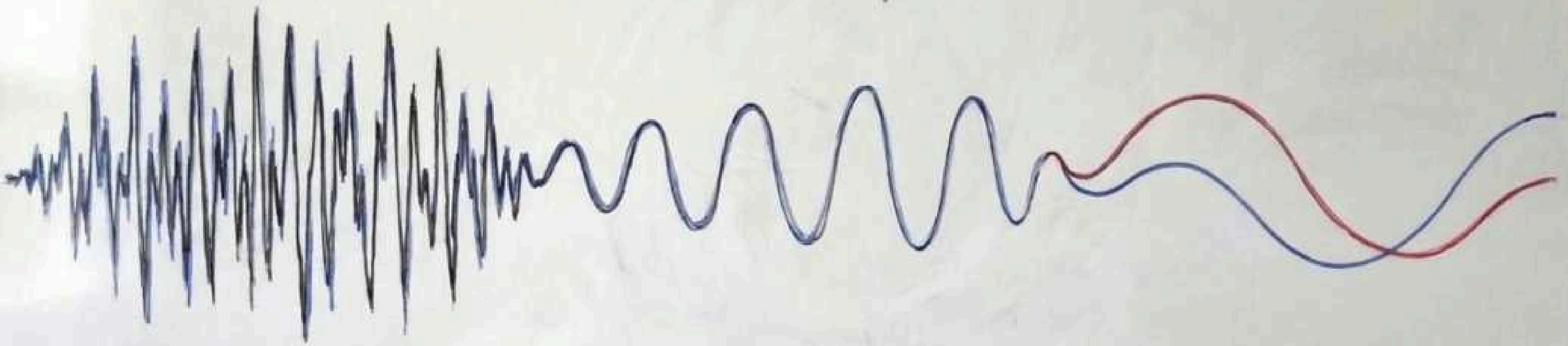
Endocrine System



2.16

Consciousness

- Awareness
- Continuous spectrum

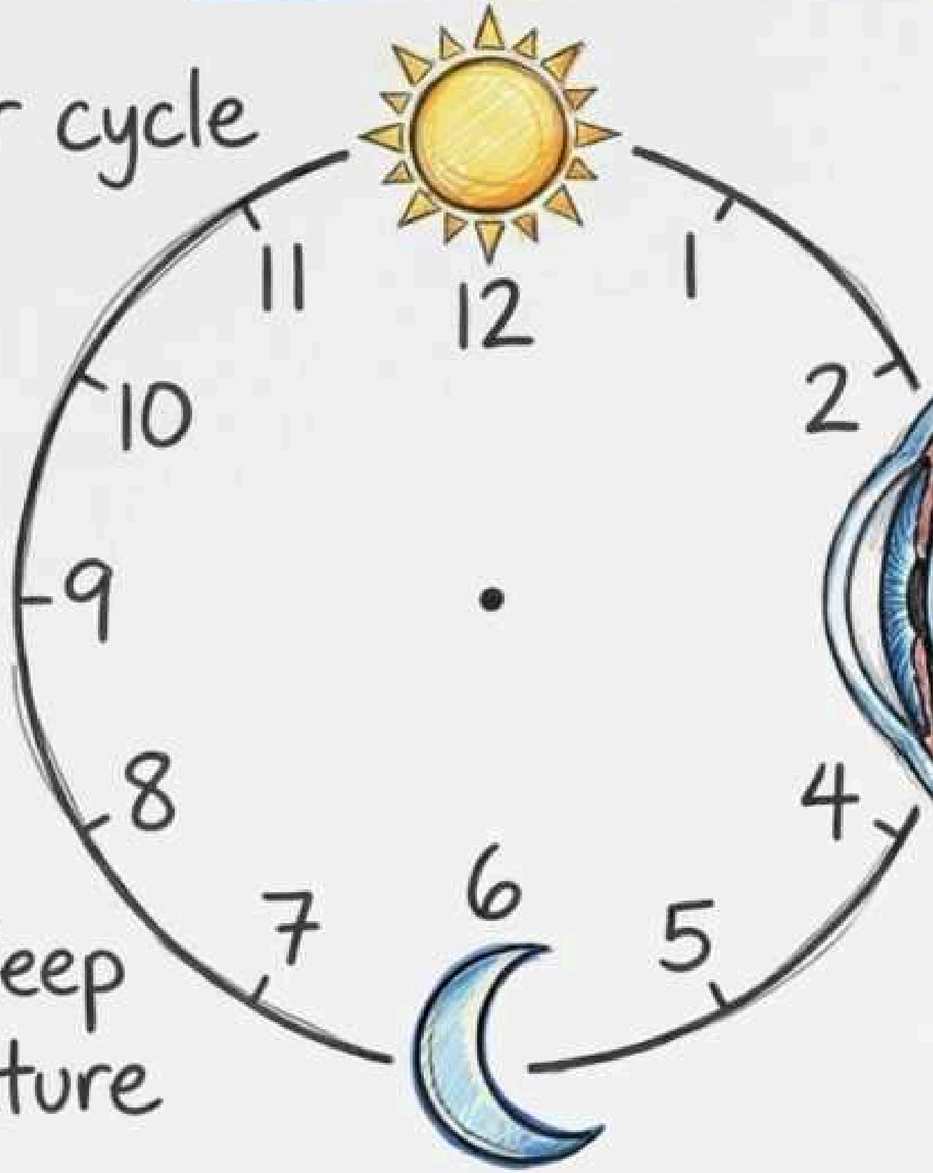


Alert → Daydreaming → Sleep

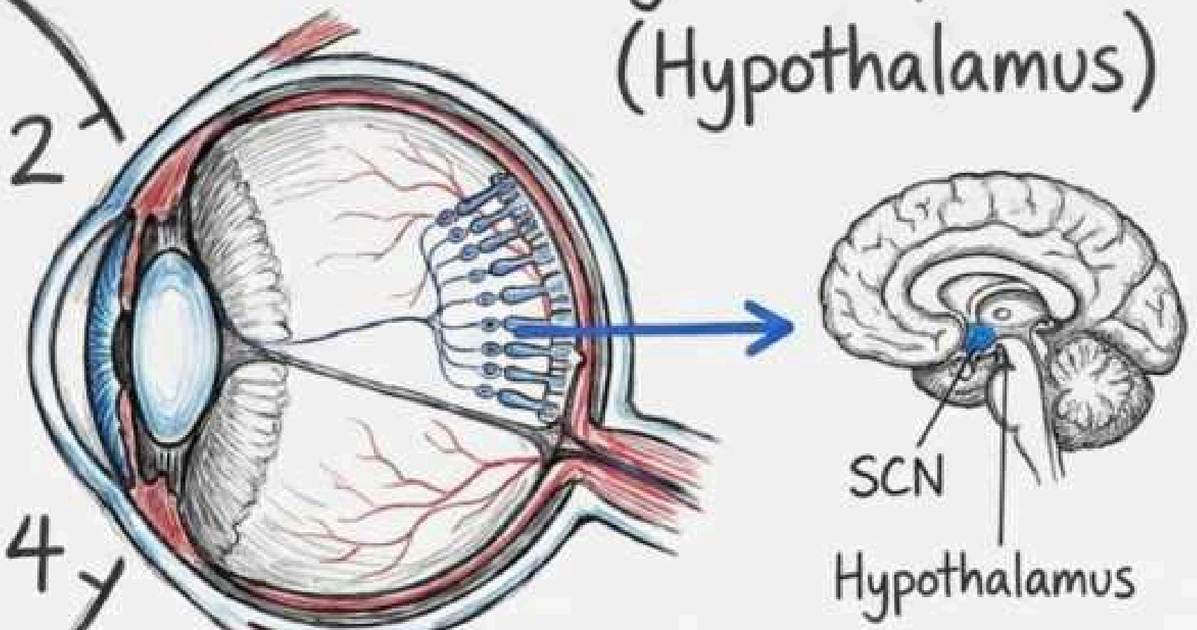
2.17

Circadian Rhythm

~24-hour cycle



Light-responsive
(Hypothalamus)



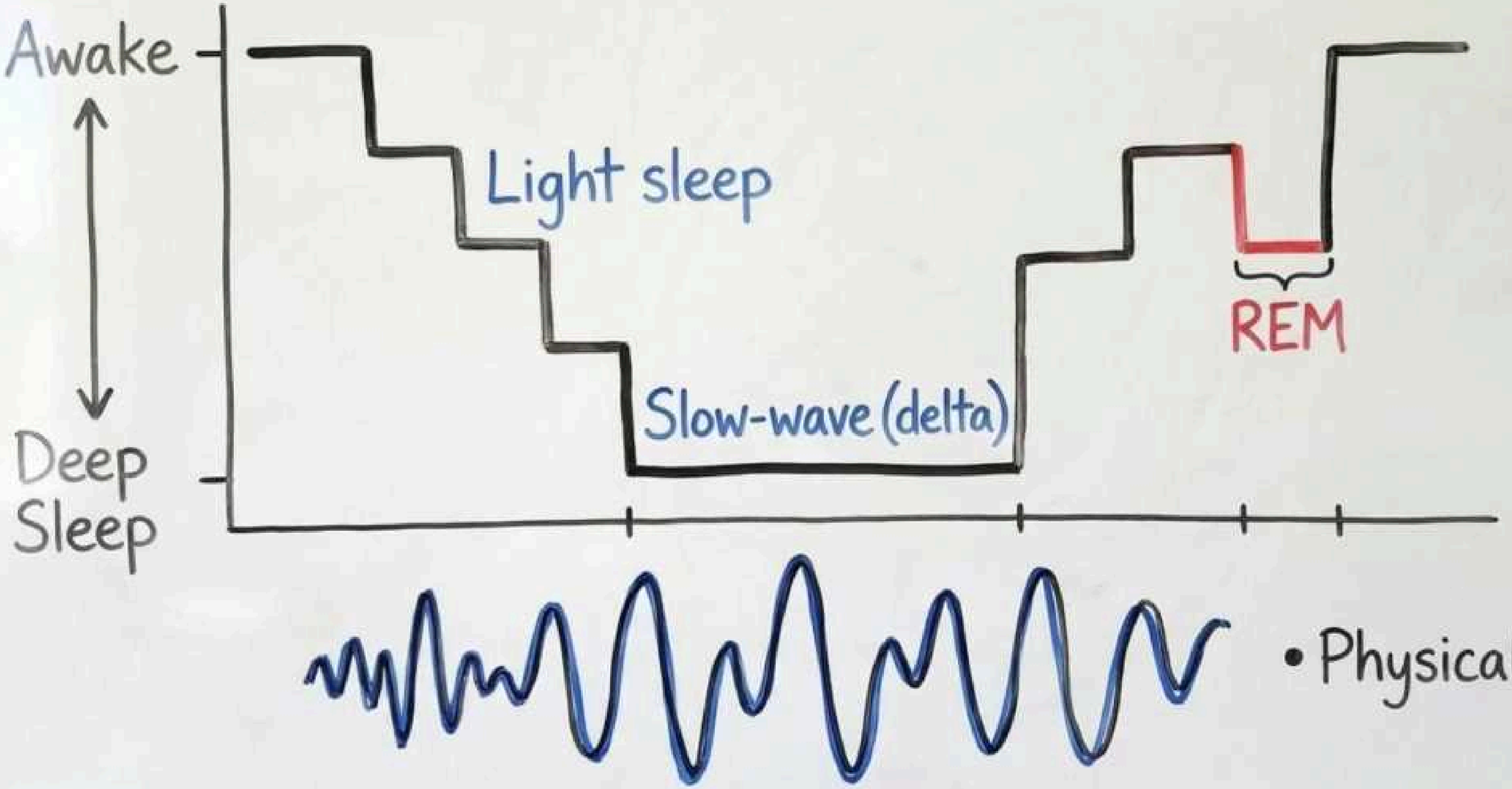
Governs sleep
& temperature

Gemini Notebook

2.18

NREM Sleep Structure

- 90-minute cycles



- Physical repair

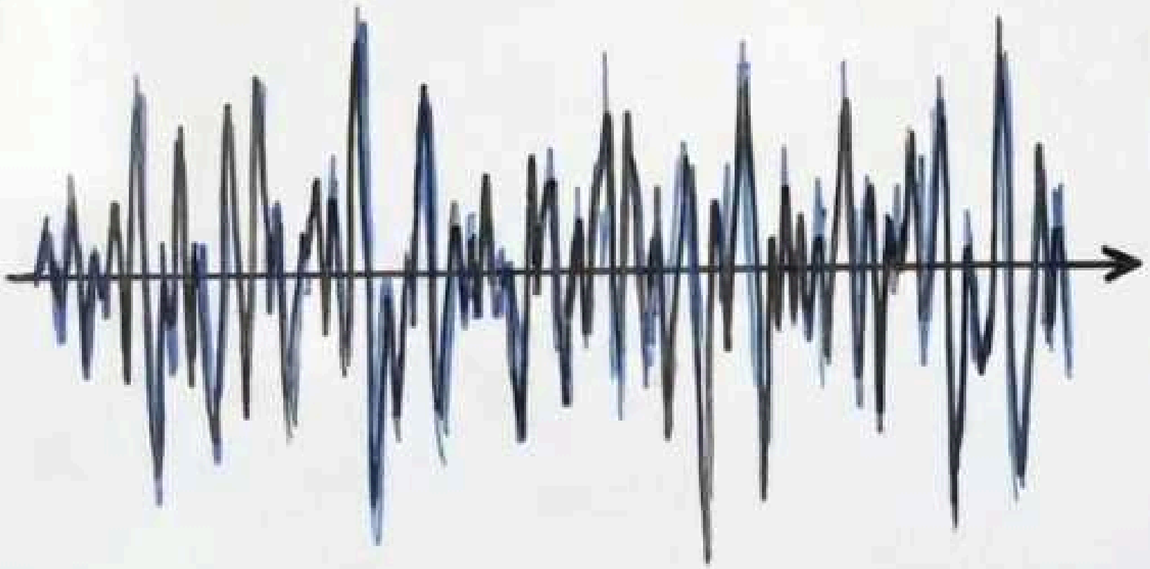
Gemini Notebook

2.19

REM Sleep



Rapid eye movement



High brain activity

Vivid dreams

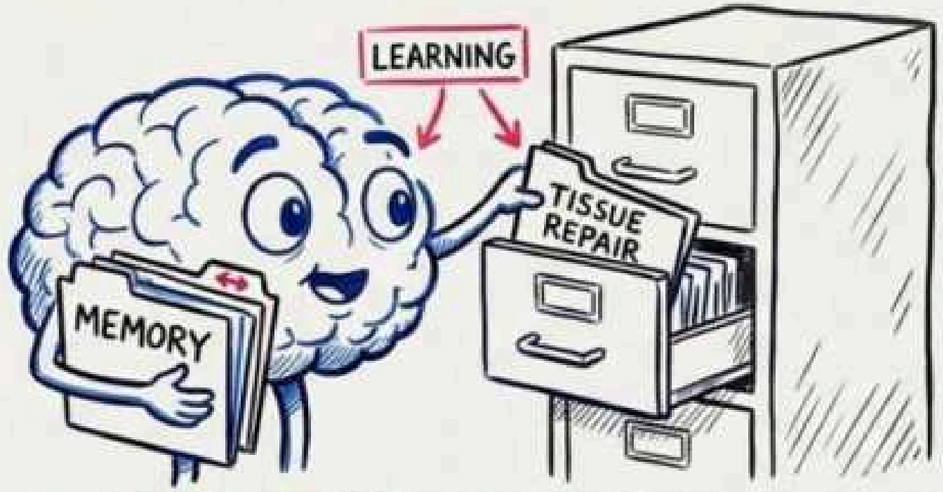


Muscle paralysis

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2.20

Function of Sleep & Dreams

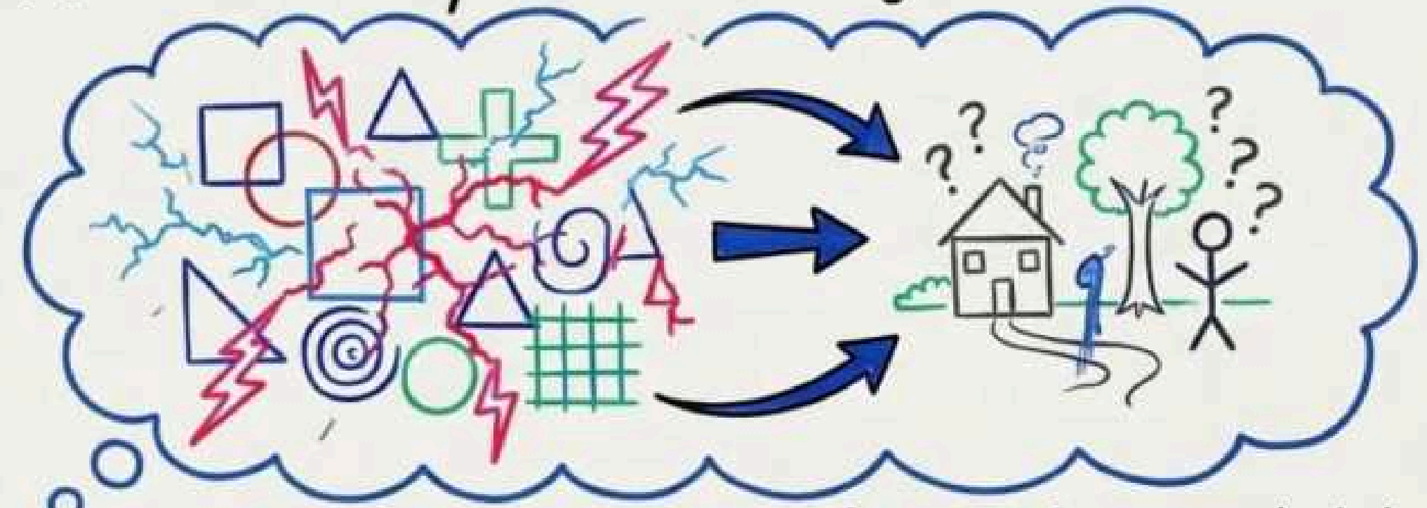


⇨ Restore body/memory

Freud (hidden wishes)



Activation-Synthesis (making sense of random activity)

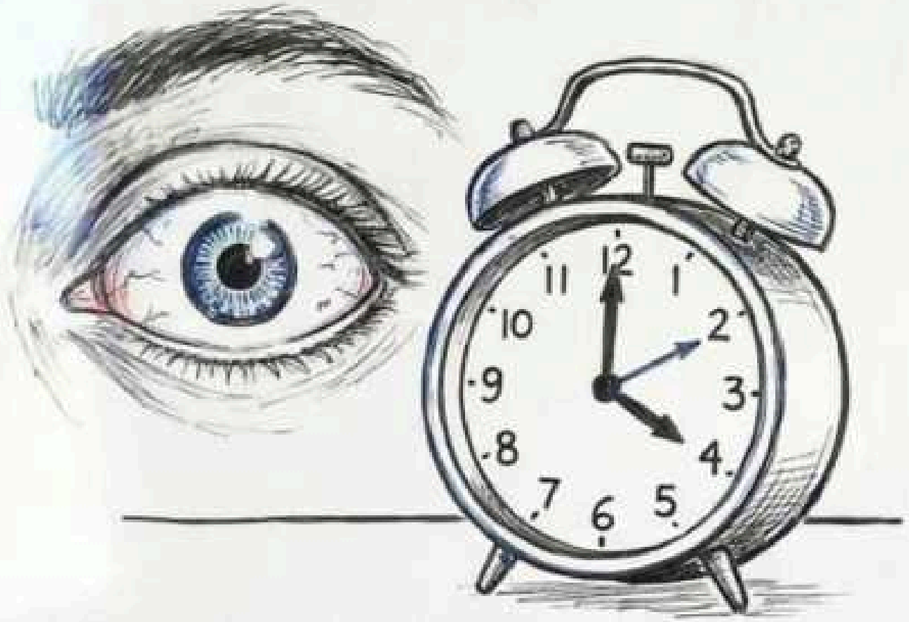


Brain tries to create story from random neural sta

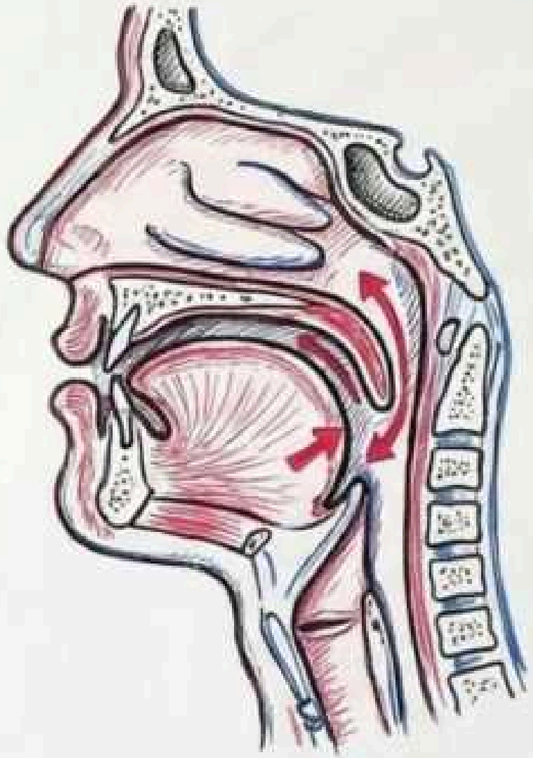
Gemini Notebook

2.21

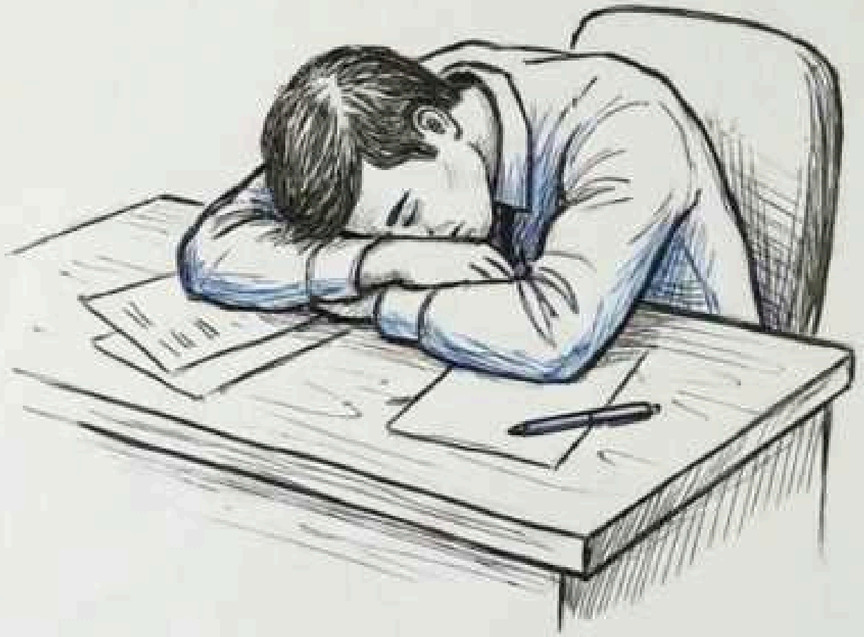
Sleep Disorders



Insomnia
(can't sleep)



Apnoea
(breathing stops)



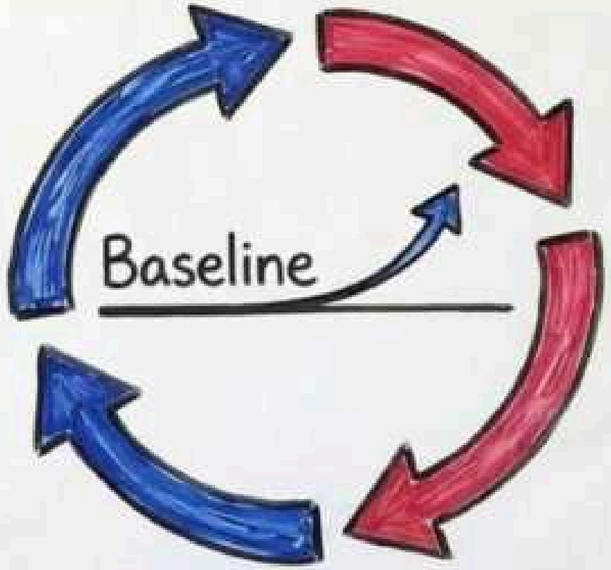
Narcolepsy
(sudden sleep)

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2.22

Psychoactive Drugs

Depressants (slow)	Stimulants (speed)
Opioids (pain)	Hallucinogens (distort)



Tolerance & Dependence

Gemini Notebook

2.23

Altering Consciousness Naturally



Hypnosis
(focused attention/suggestibility)



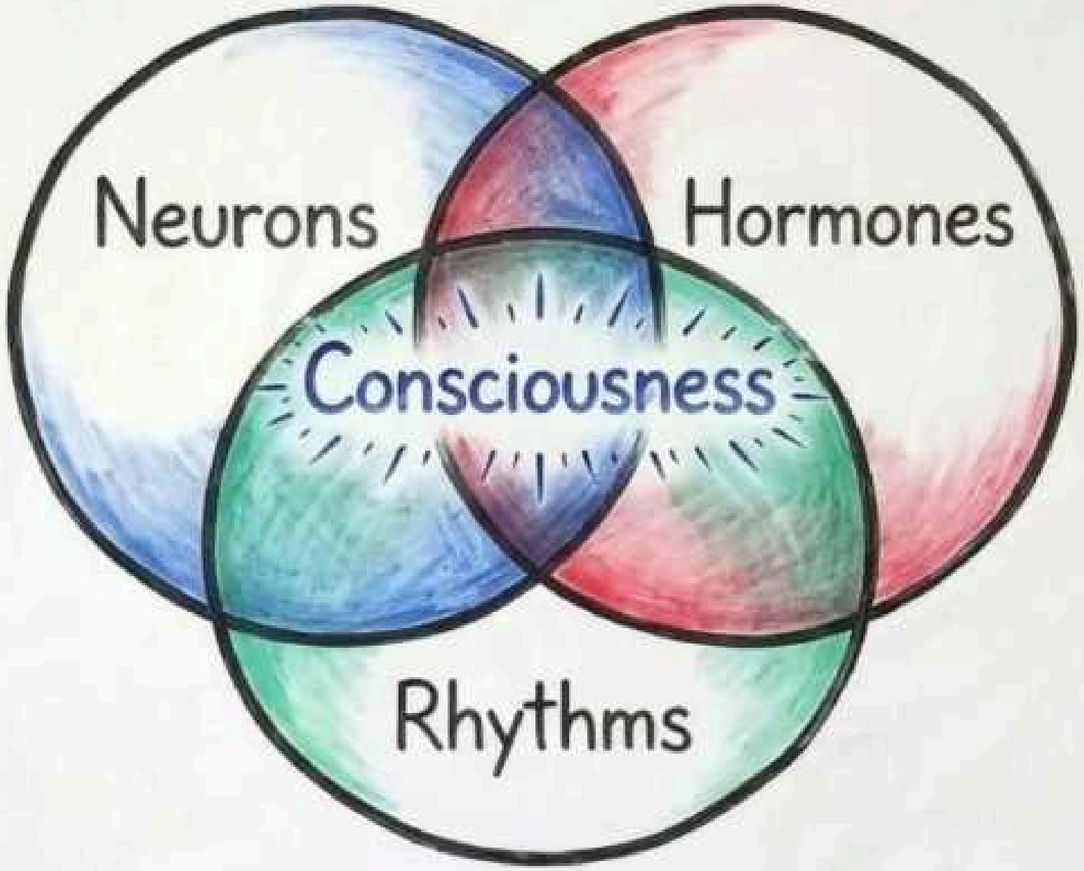
Meditation
(trained awareness/lower stress)

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2.24

One Connected Whole

Mind & Body



Neurons + Hormones + Rhythms = Consciousness

Gemini Notebook

2.25

Going Further



Keep a sleep diary

Gemini Notebook