ganglioside
GM-1

measuring electrical potentials
oscilloscope

diffusion
different forces that move molecules
one is diffusion
moves molecules from high concentrations to low

osmosis moves water through membrane to get equilibrium

electrostatic
positive cations
negative anion
opposites attract

solute transport is from left to right movement of the solutes is due to the concentration gradient

resting membrane potential
neuron not conducting neural impulse
inside negatively charged
synapse- chemical
vesicles in terminal button area- contain neurotransmitters- electrical
release neurotransmitters to synapse

protein: in too large to pass through pores
electrical charge helps to maintain K+ in
potassium: in
diffusion: out
electrostatic pressure: stay in message
Chloride: out
diffusion pushes it in
electrostatic: out
sodium: out
diffusion: in
electrostatic: in
na+/C+ pump
ATP

position of neurons pre synaptic post synaptic

SODIUM AND POTASSIUM
2channel opening
ionotropic and metabiotropic
2 ways to reach threshold
temporal and spatial
2 post synaptic potentials
EPSP, IPSP
2 ways to terminate postsynaptic potential
Re-uptake
enzymatic deactivation

Ach NE DA S-HI GABA Glutamate Endorphin Anadimide Nitrcoxide
what part of the brain it comes from
what it's function is'what part of the brain
what its methods of termination are
what are the diseases are
what drugs affect neurotransmitter

different criteria: synthesized presynaptically
released upon stimulation
effect post synaptic
mechanism of termination

acetycholine
functions: slow heart rate; contracts muscles
inhibitory in the heart
excititory in muscles
nucleus basalis-- part of the brain it comes from
precursor -choline-- needs to be consumed-- egg yolks
acetycholine- esterases method of termination
AchK
ace at end means enzymatic
drugs nicotine, botox
face has greatest number of muscles
80% non verbal
disease: alzeimers

monoamines
dopamine
function: motor; pleasure-addiction
parkinsons: movement disorder- not synthesising enough dopamine
dog head transplant
brain born

chemical control of arousal
4 substances
NE-locus coeruleus
highest during waking state-reduce SWS-cease firing during REM
2AcH-Nucleus Basalis
highest during waking-
5-HT-Raphe Nucleus-active during waking state-low during SWS- none during REM
4Histaminergic
active during waking state-reduction during REM and SWS

hypocretin
more during waking-less during sleep

Chemical control of sleep
SWS
ventral lateral preoptic area
SWS-REM
GABA inhibition
seperate mechanisms for REM
PGO waves
Pontine
geniculate
occipital
REM on cells
work with NE and 5-HT

Mechanisms for arousal SWS and REM

chemical control of sleep
sleep is regulated
does wakefullnes

sleep control: adenosine
increases sleep preoptic area (hypothalamus)
preoptic area-temperature control
warming this area

Insomnia
25% population
causes:
-shaft=labia minora
-scrotum=labia majoria
initially undifferentiation
DHT
glans, shaft, scrotum

Male
-sry
-tdf
-testosterone
-mullerian inhibiting substance
-dht

Female
-dss

Biological Sex (prenatal)
Genetic
Gonad
Hormonal
Internal repro structures
external genitalia

Postnatal
Socio-cultural

Eunuch
Berdache- 2 spirited

Klinefelter Syndrome
47 chromosomes

Gynecomastia

1 y and 2 xxs 2 xs 1 y

hypogonadism
sparse body hair
infertility

genetic mosaic

45xo, 46xy w mixed gonadal dysgenesis