NERVOUS system

Type of Neuron
- unipolar
- Bi-polar
- pseudopolar
- multipolar

Human
- 97% CNS → Brain, Spine
- 2% PNS → cranial, spinal
- 1% Autonomous NS → symphatic, para-symphatic

Human Brain
- → weight → 1250-1450gm
- → volume → 1600ml
- → Study → EEG

Skin
↓ Cranium
↓ menings
cerebro spinal fluid

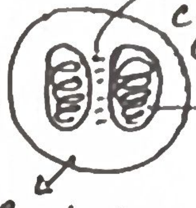
Heavy Brain → sperm whale (9-10kg)

Smallest Brain → shrew mouse (30gm)

Elephant Brain → 4-5kg

Brain

Top view



Side view

Brain
- → fore Brain
  - ① cerebrum
  - ② Dieucephlon
    - thalamus
    - hypothalamus
- mid-Brain
- → Hind Brain
  - cerebellum
  - Pons varoli
  - medulla ablan

⊛ **Cerebrum** → largest (2/3)
↳ Help- thinking, vision Reasoning

⊛ **mid Brain**
↳ connect skull & spine
control → sensory organ / lobe of Brain

⊛ **Pons varoli** → Identify source of sound

⊛ **cerebellum** → large of Hind
→ बड़ा दिमाग [memory Box / Dream Box]
→ Deja-Vu character - Identity (subconcious mind)
✗ Brain stem → voluntary activity
↑ Posture

⊛ **Medulla oblangata** → control involuntary activity
↳ 3cm long

spinal cord → Imp → C_7 T_{12} L_5 S_1 C_1
↳ length → 42-45cm | width - 2cm
⊛ function → control **Reflex action**

⊛ **PNS - 2%** → Help spine for Reflex Action
- cranial nerve — 12 pair — 10th → largest
- spinal nerve — 31 pair

⊛ **ANS - 1%**

Symphatic ↳ when active	Para-symphatic when active
BoP ↑	BoP ↓
Eye pupil ↑	Eye pupil ↓
sweat ↑	sweat ↕
Saliva ↓	Saliva ↑
Heart Beat ↑	Heart B. ↓

Brain stem
- mid Brain
- pons v.
- medulla O.

⊛ **Disorder** रोग

① Meningitis → swelling in meningen layer
↳ Due to Bac./virus
② Encephalitis → swelling any part of Brain
③ Headache → common
④ coma → Body become unconcious
⑤ Alzhimer → loss of memory
⑥ Dyslexia → Problem in word identification

Respiratory System

↳ Catabolic process → form of ATP

↳ Glucose + O_2 → CO_2 + H_2O + Energy

Respiratory organ

* mammals, aves(पक्षी), Reptile → Lungs
* Fish → Gills | Frog - Skin | Amoeba - Cell membrane
* Scorpian → Book lung | Earthworm - Skin

Respiration

- External Reso
  - Breathing
    - Inhale
    - Exhale
  - Ex-o gas
- Transportation of gas
- Internal Reso

Exchange of Gas

Law of Diffusion

	N_2	O_2	CO_2
Inhale	76%	21%	0.04%
Exhale	78%	17%	4%

Transportation of Gas

- O_2 – 21%
  - 98.5% → Hb
  - 1.5% – Plasma
- CO_2 → 4%
  - 23% → sodium Bicarbonate
  - 7% → Plasma
  - 70% → Amino acid

Hb (Haemoglobin) + O_2 → (HbO_2)

Pure Blood → cell → Impure Blood (CO_2)

Internal Respiration

↳ Also known as cellular respo

- Dissociation of HbO_2: $HbO_2 \rightarrow Hb + O_2$
- Oxidation of food stuff

Internal Reso

- Anaerobic
  - O_2 ✗
  - cytoplasm
  - Glycolysis
    - ↳ EMP Pathway
    - Embedon
    - Parnas
    - Meyerhof
- Aerobic
  - O_2 ✓
  - mitochondria
  - Kreb cycle

Glucose

→ Glycolysis

Pyruvate

- O_2 ✓ → Citric Acid → Energy – 2 ATP
- O_2 ✗ → Lactic acid → 38 AP

[36 + 2] = 38 ATP

IMP Points

- Permanent air inhalation → 12-16 time
- Total Amt of air in one min – 7000-8000 ml
  - ↳ 1 day → 11K - 16K l
- IRV – Inspiration Reserve volume → 2500 ml - 3000 ml
- ERV → 1500 - 2000 ml
- # Residual volume → 1000 - 1500 ml

Flow chart

1. Nassal passage – Hair, mucus
2. Larynx – vocal cord
3. Trachea – wind pipe – length – 10 cm, W – 2 cm
   - ↳ C-type cartilage Protect
4. Bronchi
5. Bronchiols
6. Alveoli → Site of gas exchange

(4), (5), (6) → lungs