

INTRO TO PHYSICS

What is Physics?

Physics is the analysis of nature conducted in order to understand how the universe behaves.
(The root of most scientific principles)

Relationship to other sciences

Chemistry -> Physics help understand fundamental forces in atoms, molecules, and chemical reactions

Biology -> Physics can be applied in motion and force of movement of muscles and bones

Who contributed to the development in Physics?

BCE:

- Thales of Miletus (Naturalism)
- Aristotle (Natural Motion)
- Eratosthenes (Circumference of the Earth)
- Archimedes (Buoyancy + Math of Simple Machines)
- Maharshi Kanada & Pakudha Kaccayana (Atomism)

CE:

- Ibn al-Haytham (Vision)
- al-Biruni (Astronomy + Mathematical Geometry)
- Shen Kuo (Magnetic Compass + true North)
- Nicolas Copernicus (Heliocentric Models)
- Galileo Galilei (Heliocentric Models + Speed & Velocity + Gravity & Freefall + Projectile Motion + Pendulum)
- Johannes Kepler (Planetary Motion & Universal Gravitation)
- Christiaan Huygens (Wave theory of Light + Mathematical Physics)
- Sir Isaac Newton (Classical Mechanics/ Newtonian Physics)

Base quantities	SI unit	Symbol
Mass	kilogram	kg
Length	meter	m
Time	second	s
Current	ampere	A
Temperature	kelvin	K
Amount of substance	mole	mol

The Scientific Method (Cyclic Process)

Observation -> Hypothesis -> Prediction -> Experimentation
+ Peer review removes bias
+ Conduct a rigorous experiment to ensure accuracy

*Hypothesis must be reformulated and should propose cause, leading to a mathematical relationship

Prefix	SI unit	Symbol
giga	G	$\times 10^9$
mega	M	$\times 10^6$
kilo	k	$\times 10^3$
mili	m	$\times 10^{-3}$
micro	μ	$\times 10^{-6}$
Nano	n	$\times 10^{-9}$

These are my PERSONAL notes but it is free to all for educational purposes.