

Prostrations

Respectful Greetings

Namo Buddhaya

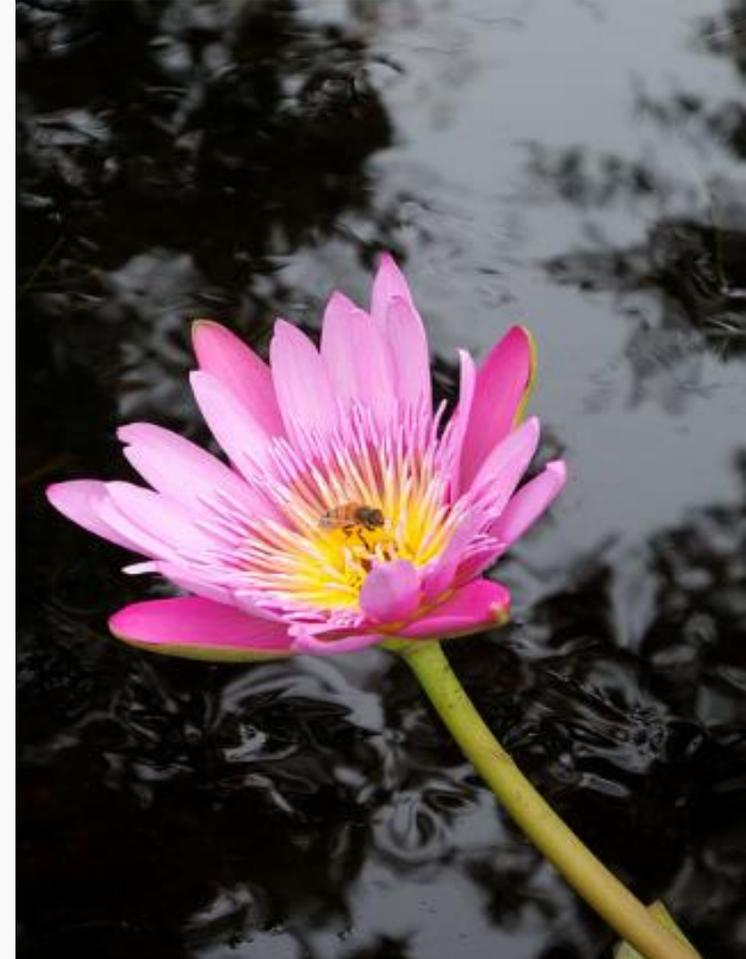
Enlightened persons

Namo Dharmaya

Way, path, method

Namo Sanghaya

Pure hearts



Dedication of Intent (Gatha)

The unsurpassed, profound and intricate dharma is difficult to encounter, even over hundreds and thousands of kalpas.

Now I have seen and heard the dharma,
I behold and uphold what the dharma offers.
I wish to understand the true meaning of the
Tathagata.

OVERTURE



Overture a prelude to the spirit and the essence of the entire lecture series! One more time, concepts are reviewed again.

Carefully dissect complex concepts of microscopic dimensions, thus roots and meanings are clearly defined to enhance understanding.

Perception of Reality

Perception of reality:

- Perception (observer/subject/inside): How reality is perceived.
- Reality (observed/object/outside): What the reality is?

Technique of analytical reductionism:

Reductionism is an approach to understand the nature of complex things by **reducing** them to the interactions of their **parts**, or to **simpler** or more **fundamental** things... in some respects comparable to [Atomism](#)

Stimuli are Particles = Wave Vibrations

Sensory faculty	Stimulus (vibrations)	Stimulus Particles
	<p>Light waves</p>	<p>Photons (quantum particles)</p>
	<p>Sound waves</p>	<p>Air molecule pressure change</p>
	<p>Chemical</p>	<p>particles</p>
	<p>Chemical</p>	<p>particles</p>
	<p>Matters, liquid, temp, air, moisture</p>	<p>particles</p>
	<p>Internal brain arousal (sleep)</p>	<p>Currents are electrons (quantum particles⁵)</p>

Key perception !!!

- 2500 years ago, Buddha lacked scientific words to describe molecules and atomic particles that bombarded the sensory faculties. Therefore he used the word “DUST” (the smallest particles known in ancient times). “Dust” is subsequently misconstrued as “defilements” by his disciples.
- He used the term “ROOTS” to describe the microscopic nerve endings.
- It was an even greater challenge to describe the mental process; he used the word “aggregate”. “Inferno” to describe involuntary bombardment.
- Particles, neuron, synapse, neurotransmitters, Na, K, firing of neurons were in the metaphysical realm at that time.
- Lack of proper wordings, the profound teaching (the true message) was misunderstood and mislead, that was the samsara, the true suffering.

P of R big questions

“If a tree falls in a forest and no one is around to hear it, does it make a sound?”

1. Observation and knowledge of reality — **what does “Reality” really look like?**
2. Is life “real”?
3. What is the **Meaning of Life?**

Perception of Reality

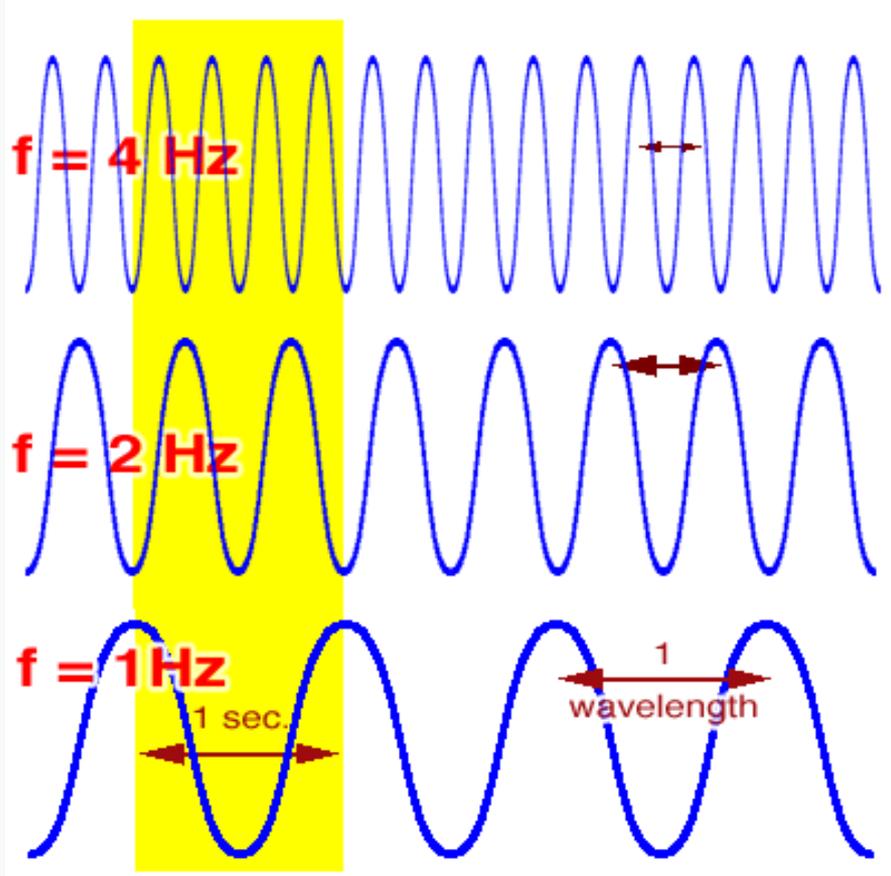
- Particles do not give strength, but wave does.
- Reality is in wave form; everything is vibrating as wave.
- Therefore, the reality out there is wave.
- However, the fundamental of wave (its essence) is particle.
- Let us understand wave!

Looking at Waves



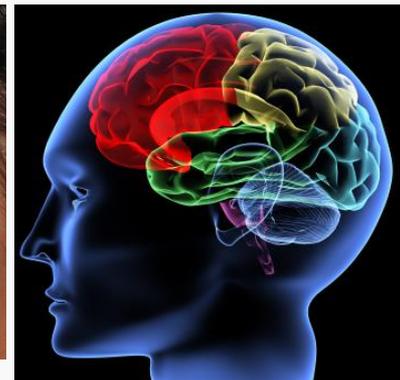
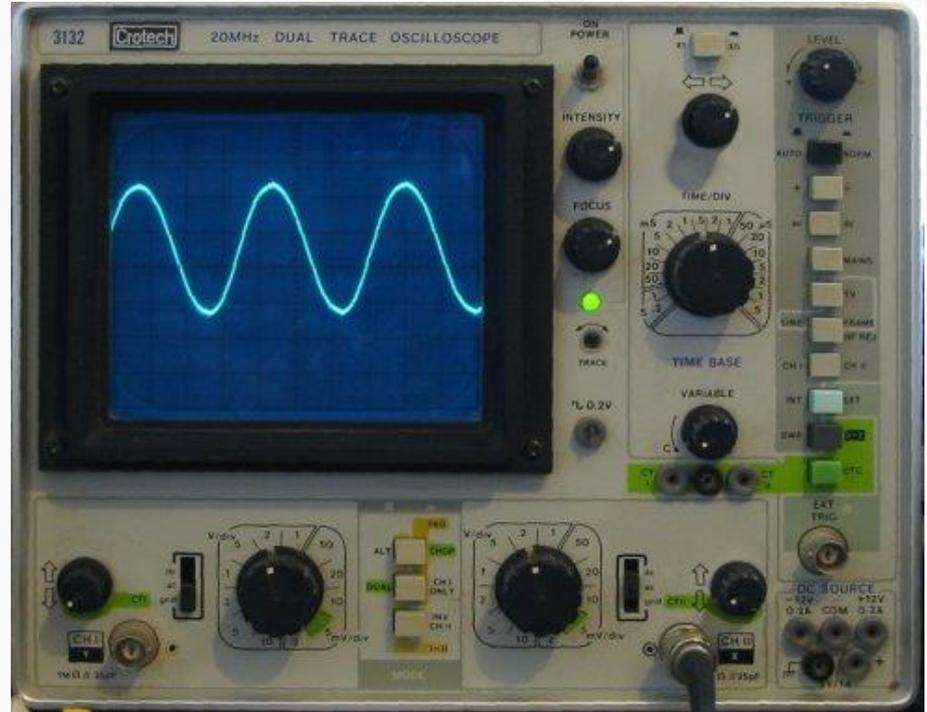
- **Calm wave comes very infrequently (slow and infrequently)**
- **Rough wave comes very frequently (strong and frequently)**
- **No wave = no phenomenon = no reality**
- **Therefore, reality is how frequency the wave comes**

Looking at Waves

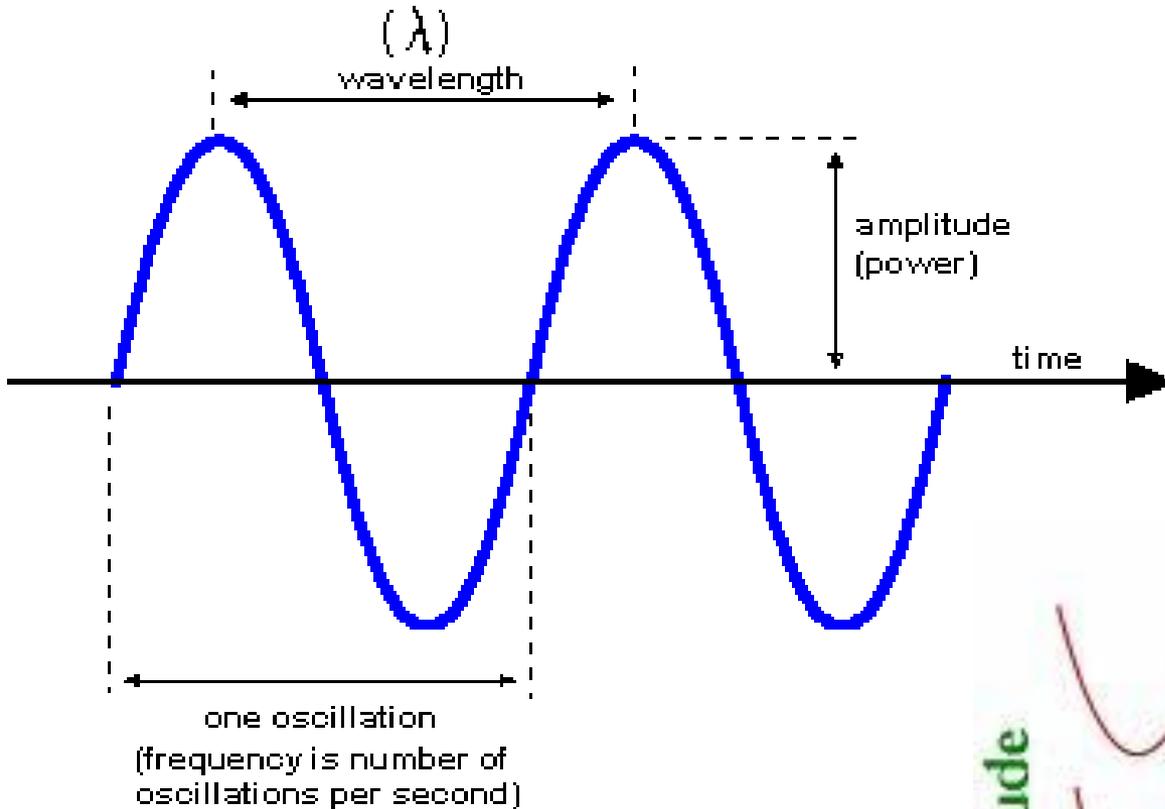


Energy/Wave /Frequency is Phenomenology

- Perception by:
 - Equipment (oscilloscope) is a wave length measuring device
 - Sensory organs are perceptions by the 6 senses to form a mental picture through the 5 aggregates



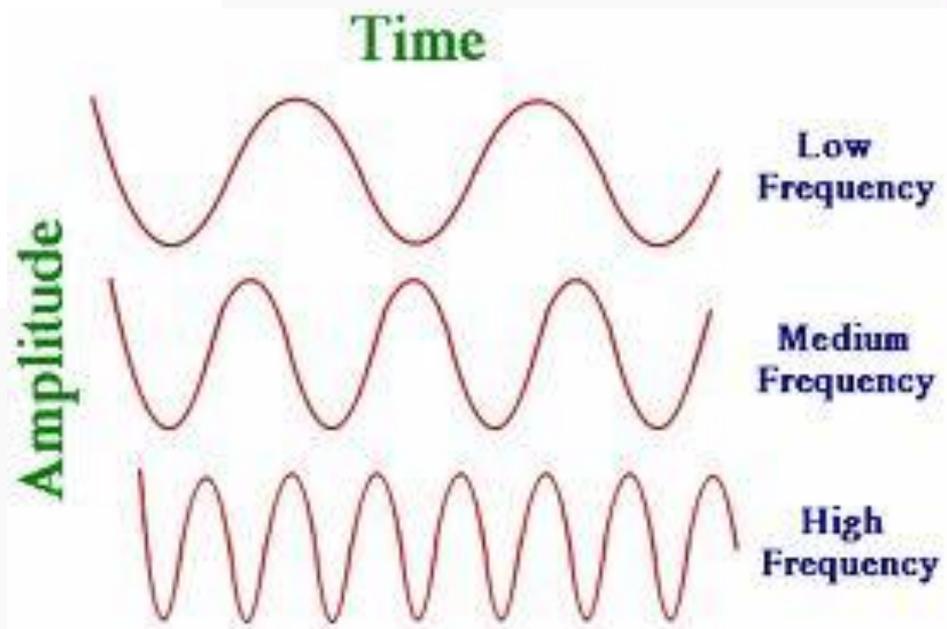
Frequency Definition = how frequent oscillation occur over time



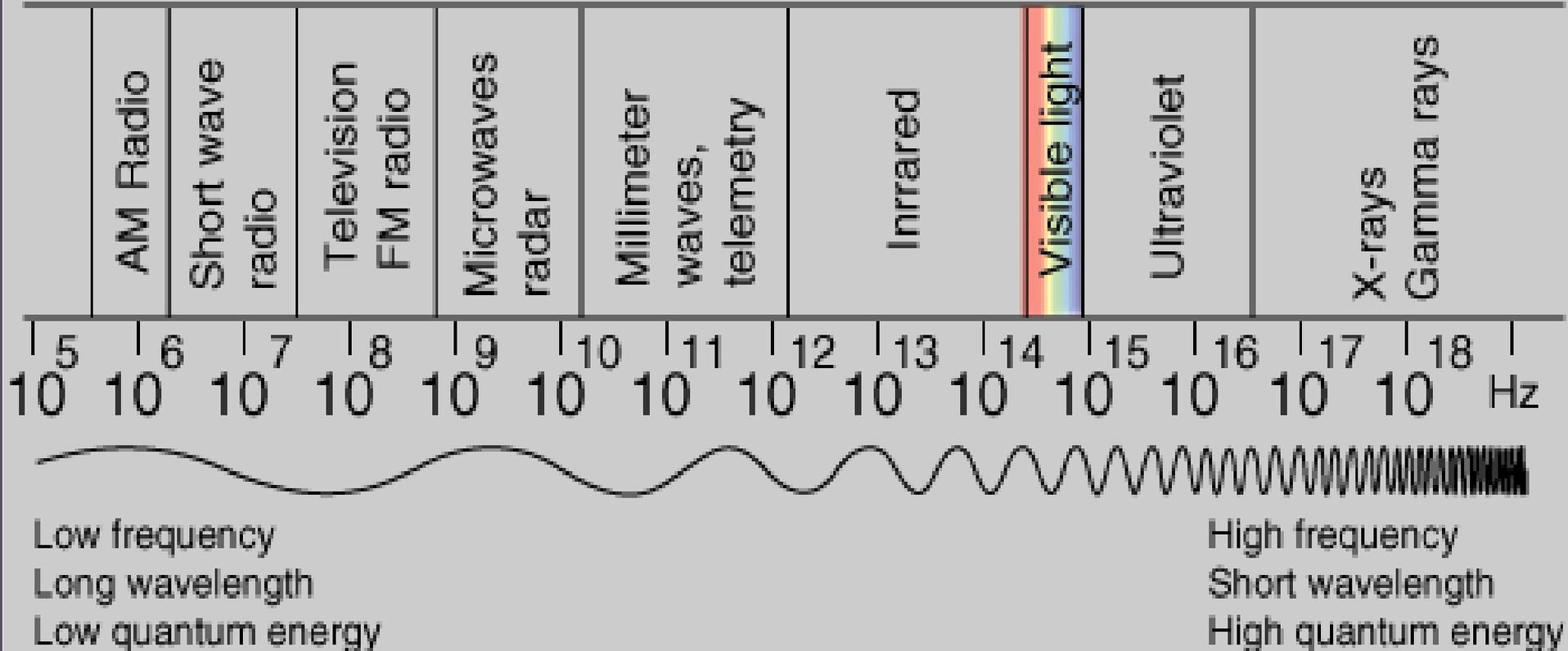
$$v = f\lambda$$

v : speed ($m.s^{-1}$)
 λ : wavelength (m)
 f : frequency (Hz or s^{-1})

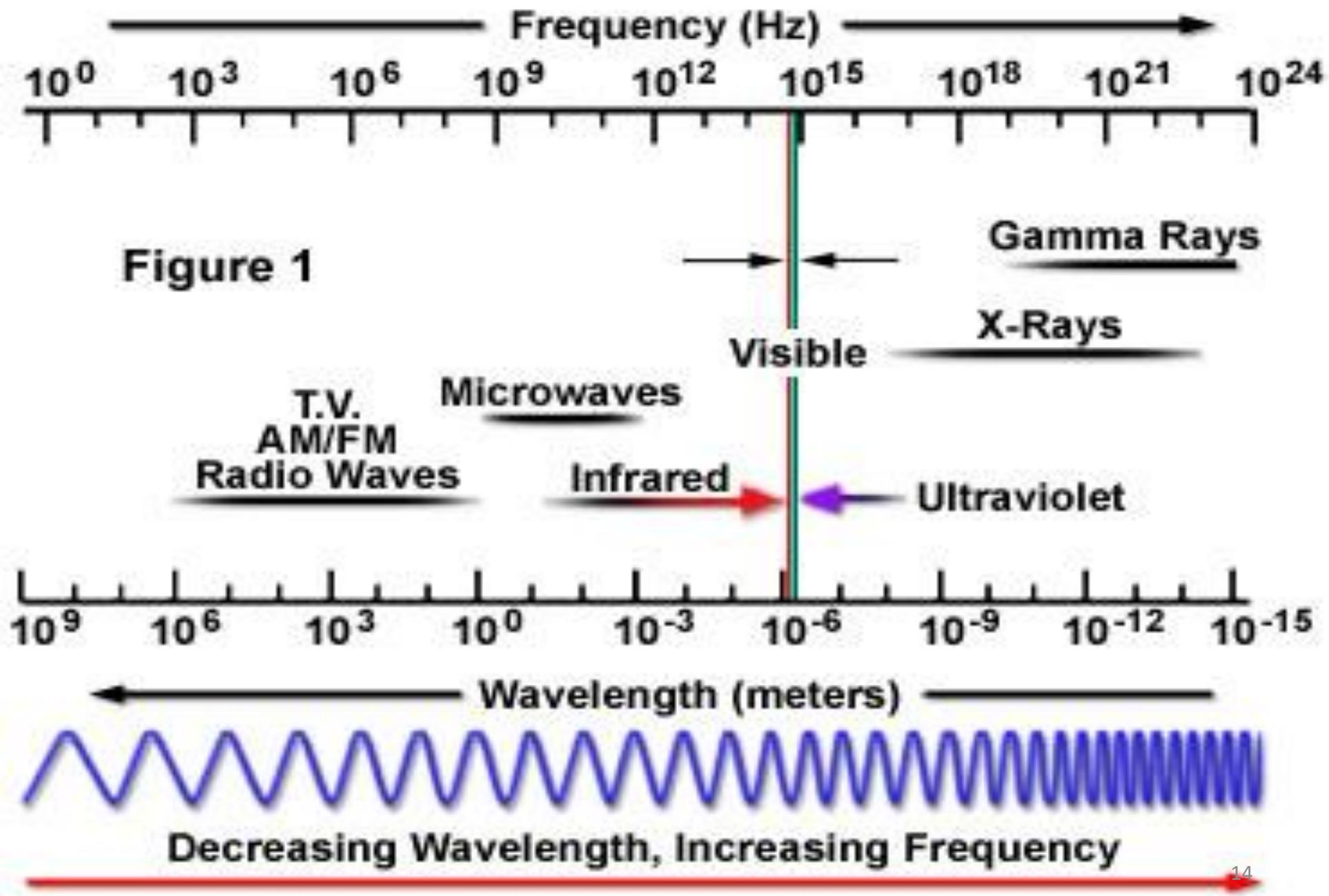
Oscillation: time to complete 1 full cycle
Frequency; number of oscillations per second



Energy \approx Wave Length \approx Frequency



Electromagnetic Radiation Spectrum



Wave Length / Frequency / Temperature

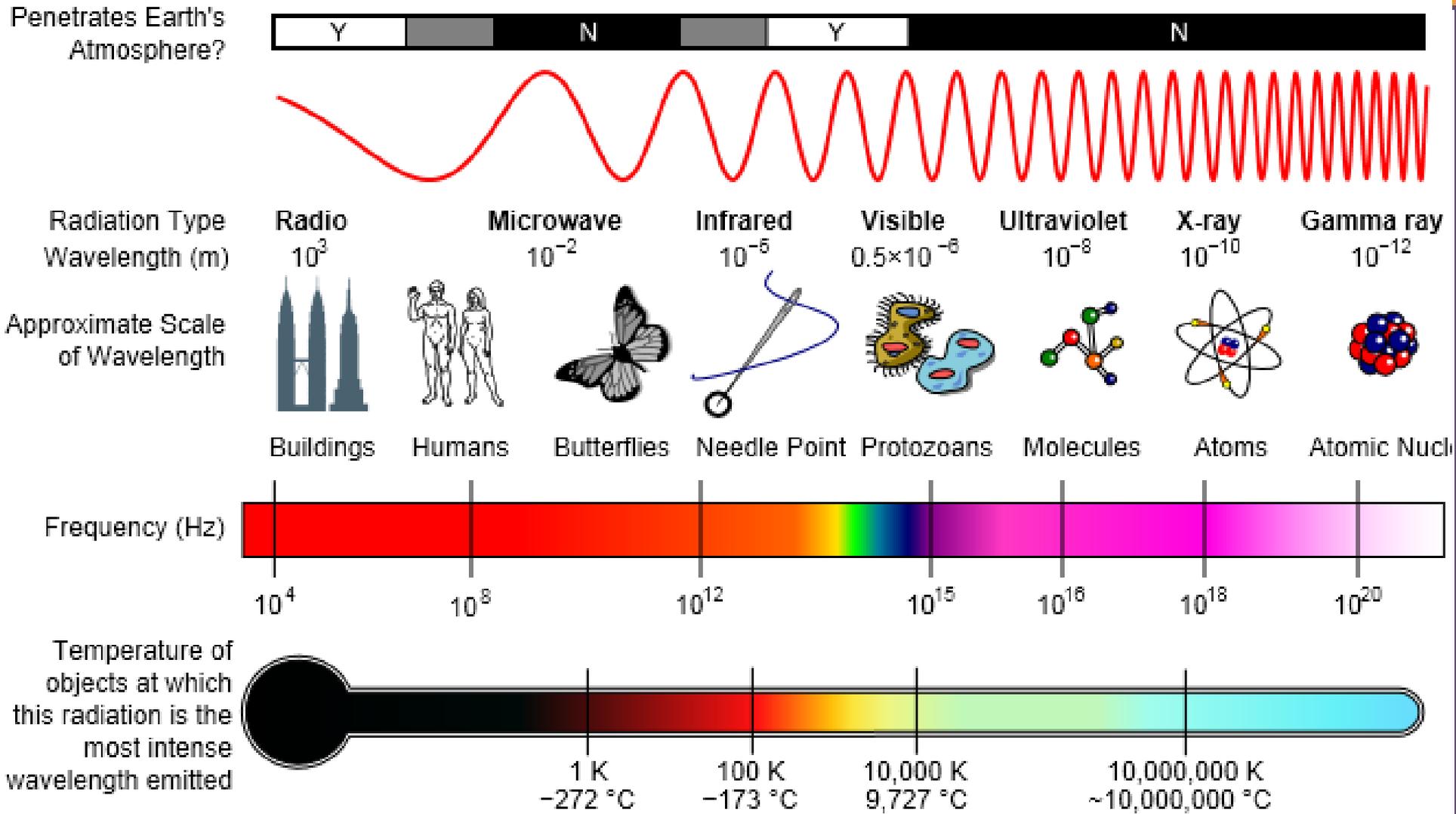
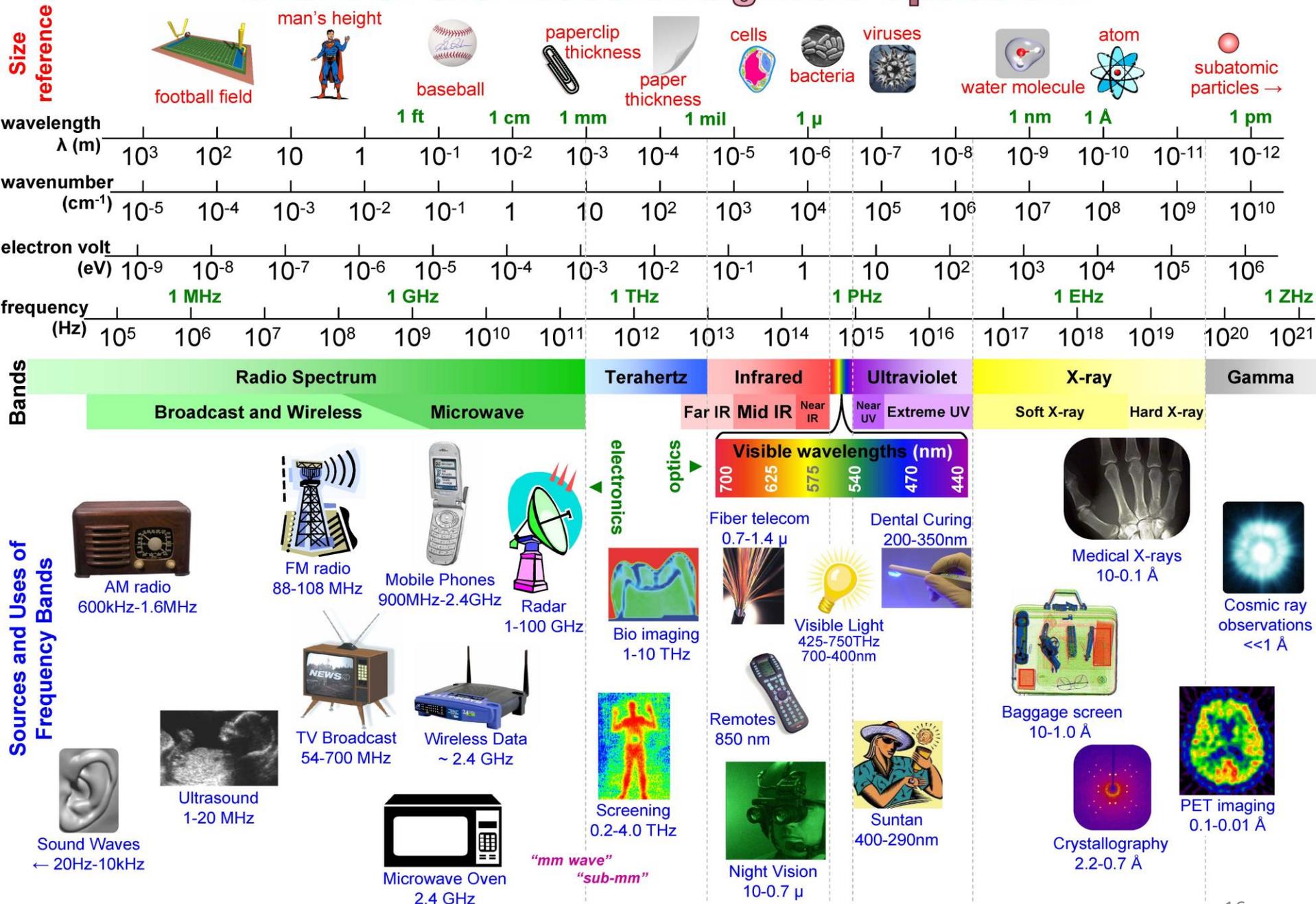


Chart of the Electromagnetic Spectrum



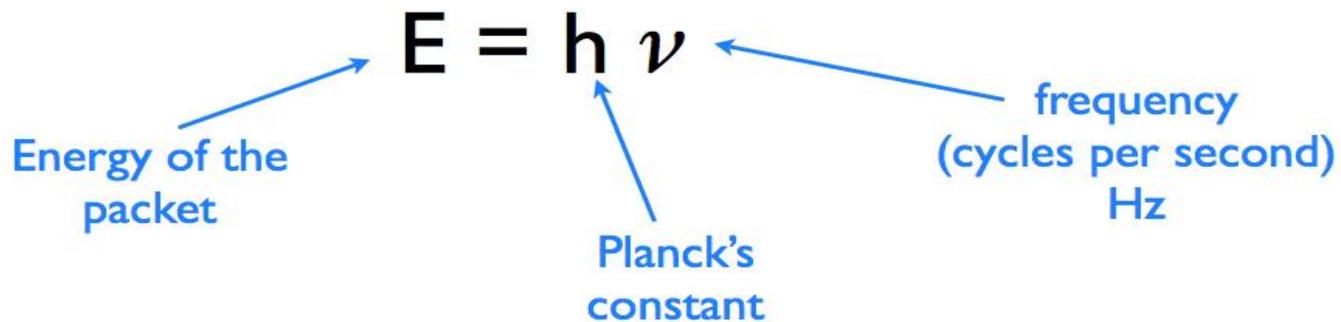
$$\lambda = 3 \times 10^8 / \text{freq} = 1 / (\text{wn} * 100) = 1.24 \times 10^{-6} / \text{eV}$$

Perception of Reality

- Humans cannot perceive the whole expansion of the spectrum.
- Frequency, wavelength, energy and electromagnetic spectrum are just human description of the same phenomenon out there.
- Humans try to understand how wave works. Therefore, we come up with all measurements in order to characterize the wave behavior, and we can understand reality much better.
- Enlightened one transforms the knowledge into something useful and meaningful.
- Instruments/equipment/devices are invented to convert the objective reality out there into meaningful subjective human reality that fits human's narrow perception (6 senses).
- Therefore, enlightened mind brings out all the potential with no barrier, no fear, no hesitation and no ignorance.

Reality = Energy \approx Frequency \approx Wave Length

- Wave length = dimension
- Frequency = how frequent the waves occurs
- Energy = how frequent is the constantly moving wave = frequency x a constant



The diagram shows the equation $E = h \nu$ centered in a white box. Three blue arrows point from labels to the terms in the equation: one from 'Energy of the packet' to 'E', one from 'Planck's constant' to 'h', and one from 'frequency (cycles per second) Hz' to 'ν'. The background features several colorful waves (red, orange, green, blue, purple) of varying wavelengths and frequencies, illustrating the concepts of wave length and frequency.

$$E = h \nu$$

Energy of the packet

Planck's constant

frequency (cycles per second) Hz

Max Planck – Father of Quantum Physics

- Planck's constant = $6.62606957 \times 10^{-34} \text{ m}^2 \text{ kg/s}$
- Radiation, such as light, is emitted, transmitted, and absorbed in discrete energy packets, or quanta, determined by the frequency of the radiation and the value of Planck's constant. The energy E of each quantum, or each photon, equals Planck's constant h times the radiation frequency symbolized by the Greek letter nu, ν , or simply $E = h\nu$.

The diagram shows the equation $E = h\nu$ centered at the top. Three blue arrows point from labels below to the variables in the equation: one from 'Energy of the packet' to 'E', one from 'Planck's constant' to 'h', and one from 'frequency (cycles per second) Hz' to 'ν'.

$$E = h\nu$$

Energy of the packet

Planck's constant

frequency (cycles per second) Hz

Reality = Energy \approx Frequency \approx Wave length

Concept	Definition	Symbol	Unit
Wave length = how far?	Dimension $\lambda = c/f$	λ	Meter m, nm
Frequency = how frequent?	# oscillation/s; $f = c/\lambda$	f or ν	#/s or Hz
Speed = how fast?	$f\lambda$		
Speed of light in a vacuum	$c = f\lambda = 3.0 \times 10^8$	c	m/s
Energy = how much, how frequent constantly	$E = fh = h\nu = hc/\lambda$	E	Joules (J)
Planck's constant = 2D space*mass/s	$6.62606957 \times 10^{-34}$	h	$m^2 \text{ kg} / \text{s}$

Energy = how frequent is the constantly moving wave = frequency x constant

<http://www.1728.org/freqwave.htm>

<http://www.kentchemistry.com/moviesfiles/chemguy/advanced/ChemguyEnergy.htm>

$$v = f\lambda$$

v : speed ($m.s^{-1}$)
 λ : wavelength (m)
 f : frequency (Hz or s^{-1})

$$E = h \nu$$

Energy of the packet \rightarrow E
 Planck's constant \rightarrow h
 frequency (cycles per second) \rightarrow ν Hz

Key concepts

- Electromagnetic radiation comprises of varying electric and magnetic fields that can be thought of either as waves or as light particles (photons).
- When it is not received/perceived, it is a wave form.
- When it is received/perceived, it is a particle form (i.e. photon).
- All electromagnetic radiation travels at a speed = *wavelength x frequency*
- Low frequency = long wavelength = low energy.
High frequency = short wavelength = high energy.

Perception of Reality

“If a tree falls in a forest and no one is around to hear it, does it make a sound?”

Observation and knowledge of reality

1. Is life “real”? **Yes, at every dimension**
2. What is the Meaning of Life?

“The meaning of life is to give the universe meaning through one’s enlightened soul” - Dr. Ching Lo

Language Color Code

- Buddhism
- Science - physics
- Philosophy – metaphysics

AWE use scientific knowledge to explain what the ancients tried to express in the absence of science.

Energy/Wave /Frequency is Phenomenology

- Ocean water is one universal essence (H_2O), we call it oneness, equanimity
- no wave, no phenomenon perceived but water still exists
- Energy in motion is wave (ocean), we call it duality. Wave comes wave goes, wave arises and wave subsides, wave is born and wave dies. Wave is a phenomenon.
- Waves did not change the chemistry of H_2O even when it is moving (the essence is unchanged, we call it pure nature, immovable)
- How frequent is that wave? Hurricane, rapid waves. Calm sea, less frequent.

Living vs non-living

Human

- Perception perceived by sensory organs is called perception, a mental picture through the 5 aggregates.
- Can perceive fragment of the reality; perception is limited.
- Has mental process (ego); interpret perceived information; therefore, there is suffering.
- Made up of atoms/molecules.
- Invents/build instrument/equipment.
- Living; has consciousness; has ability to perceive how it is perceiving; can perceive itself.
- Can be dehumanized to become an oscilloscope; has no 5 aggregates – Arahat.
- Has choice of knowing the truth and living a meaningful life.

Oscilloscope

- Perception perceived by an equipment is called wavelength measurement.
- Can detect/perceive every wavelength; wholesome reality.
- Has no mental process (no ego); does not interpret the wavelength. Therefore, there is no suffering.
- Made up of atoms/molecules.
- Build by human.
- Non-living; has no consciousness. Therefore, cannot perceive itself.
- Can be humanized by putting a 5 aggregate program – camera.
- Has no choice and no life.

Perception of Reality & the Meaning of Life

- 8th sense (consciousness) drives the formation of 1st to 7th senses in order to perceive the reality out there.
- Consciousness creates life; life is consciousness.
- All beings have consciousness of the primordial instinct (eat, survive and reproduce).
- Animals do not know how they perceive reality.
- Only human has ability to understand how reality is perceived, but many people just live the life of animals.
- Therefore, we must be aware of the difference and live life above the animal realm. Otherwise, universe is cold and meaningless.
- Life is a miracle of grand design to perceive this grand scheme of thing.
- That is the true meaning of life.

Perception of Reality & the Meaning of Life

1. Observation and knowledge of reality.
Reality” looks like a continuum of electro-magnetic radiation spectrum to the human observer
2. Is life “real”? **Yes, at every dimension**
3. What is the **Meaning of Life?**
Consciousness created (life) a miracle of grand design for it to perceive itself. Each human should become AWARE of this purpose. Did consciousness created the universe?



FIN

Thank You



Transfer of merit

By this effort, may all sentient beings be free of suffering.

May their minds be filled with the nectar of virtue.

In this way may all causes resulting in suffering be extinguished, And only the light of compassion shine throughout all realms.

