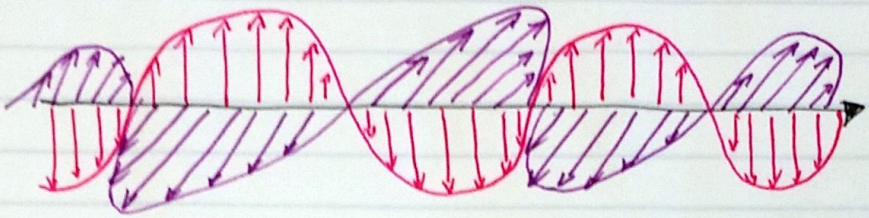
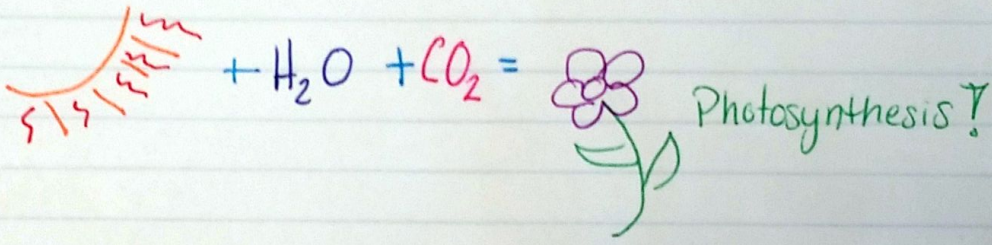
Electromagnetic Waves

Electromagnetic Waves = waves that can travel through empty space or matter and has both electric and magnetic fields

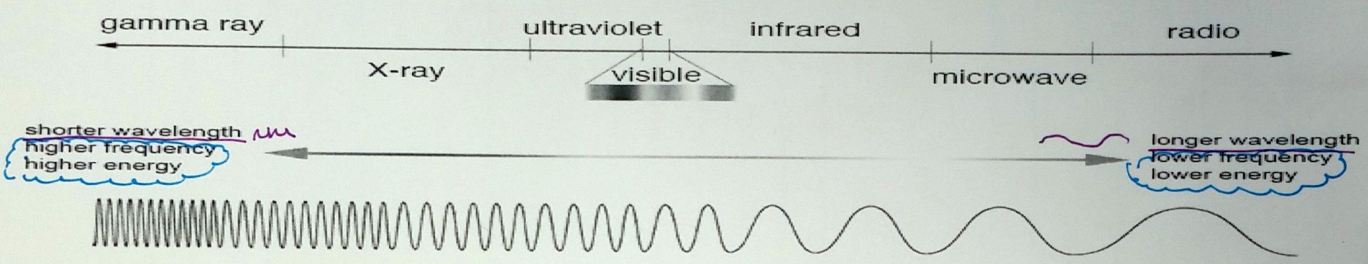
- EM waves are produced by the vibration of an electric and magnetic field together



- EM waves from the sun are the major source of energy on earth



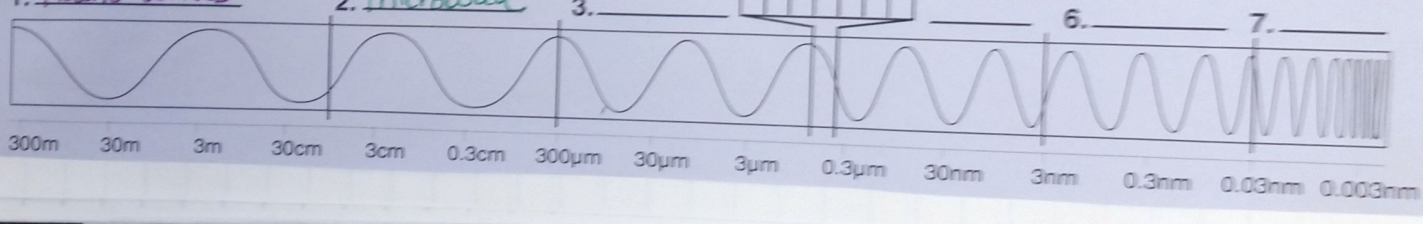
Electromagnetic Spectrum



EM Spectrum Wave:	Gamma Ray	X-ray	Ultra Violet	Visible Light	Infrared	Microwaves	Radio
Examples or Uses For:	• can be used to treat diseases • produced by nuclear explosions / supernovas • blackholes • radioactive	• X-rays - can penetrate soft tissue (muscle/skin)	• Sun - causes sunburns, skin cancer, wrinkles, makes vitamin D • Kills bacteria - use to clean surgical instruments • tanning beds • bulbs	COLORS! R: red O: orange Y: yellow G: green B: Blue I: indigo V: violet	• used in TVs/remotes to change settings • can detect heat / infrared goggles	• used for communications • cell phones • radar guns • microwave ovens • Wi-fi	• Broadcasting radio / TV signals • Antennas use them • Satellites • some computer networks

"Wavestown"

Label the chart below, then match the items in the picture to the Electromagnetic Spectrum



The Eye

Vision is a very complex sense, your brain makes billions of calculations every second based on information your eye gathers

Parts of your Eye

Iris = colored part, has two muscles that open and close the pupil

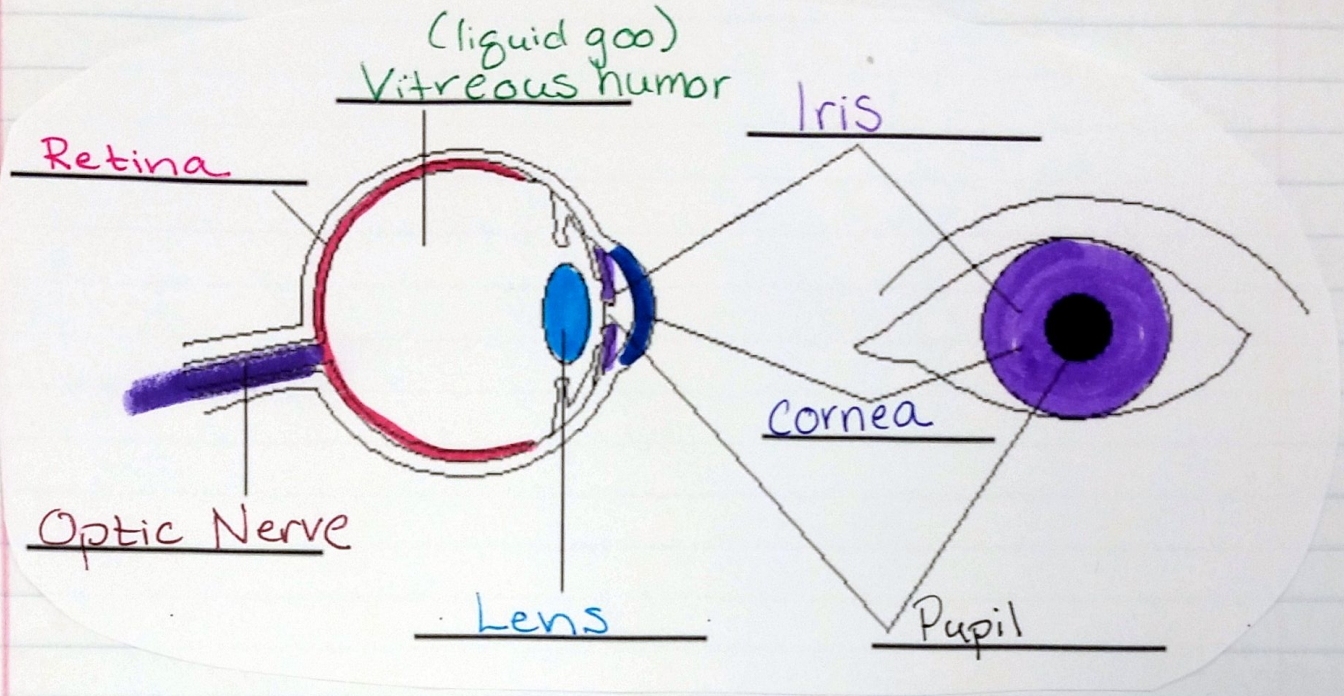
Pupil = the hole that changes size to let more or less light through

Lens = clear and flexible, changes shape to focus light to your retina

Cornea = tough and clear, protects your eye like a windshield

Retina = light sensitive cells that change light into messages that your brain understands
- Rod: light vs dark, shape, movement, details
- Cones: color

Optic Nerve = carries the messages from your retina to your brain



How do you see?

- 1st - light bounces off objects all around you and enters your eye
- 2nd - light passes through your pupil and lens to the retina at the back of your eye
- 3rd - in the retina, the light makes an upside down and backwards picture
- 4th - the retina contains light sensitive cells that change the picture into messages your brain understands
- 5th - the optic nerve carries these messages to your brain
- 6th - your brain reads the messages and tells you what your looking at