Note Taking Guide - Intro to Electromagnetic Waves

Electromagnetic waves:


Electromagnetic spectrum:


Radio Waves:
• have the lowest ______ and the longest ______.
• includes ______ waves, which are ______ (very high frequency) or ______ (ultra high frequency), and ________, with highest frequency
• Each radio station broadcasts at a set frequency. Radio waves are the ___________ waves for sound.
• Sound waves are converted into electrical signals and change (modulate) the carrier waves.
  am - ________________ modulation
  fm - ________________ modulation
• In receiver antennae, electrons are made to vibrate sympathetically at set frequency (concept of ________________)

Microwaves:
• penetrate food ________________.
• match the natural frequencies of large molecules, which vibrate and produce _____________ to cook food from inside.
• _________ molecules in the oven are too small to be excited, and microwaves also have no effect on ________________, ________________, or ________________.
• Metals __________________ microwaves.
• Droplets of ________________ absorb microwaves and form steam.
• CHALLENGE - When food is removed from oven, molecules continue to ________________, so ________________ time is included in recipes.

Infrared:
• _________ and regular sized ________________ vibrate to produce infrared waves.
• All objects emit infrared waves in the form of ________________.
• uses for infrared waves:

Visible Light:
• electromagnetic radiation to which ________________ are sensitive.
• makes up less than ________________% of electromagnetic spectrum.
• different frequencies are seen as ________________.
  red - lowest ______ and ________________ energy
  violet - highest ______ and ________________ energy

Ultraviolet:
• cause ________________ and ________________
• uses:
  • higher UV frequencies are blocked by ________________ in atmosphere

X-rays:
• discovered by ________________
• produced by greatest acceleration of ________________.
• uses:

Gamma Rays:
• highest ________________ and greatest ________________ power
• produced by ________________ reactions, including decay of ________________ atoms and nuclear explosions
• kills ________________ cells before it kills ________________ cells
• use:

Show What You Know

1.   2.   3.   4.   5.