

## Note Taking Guide - Episode 1301

Electromagnetic waves:

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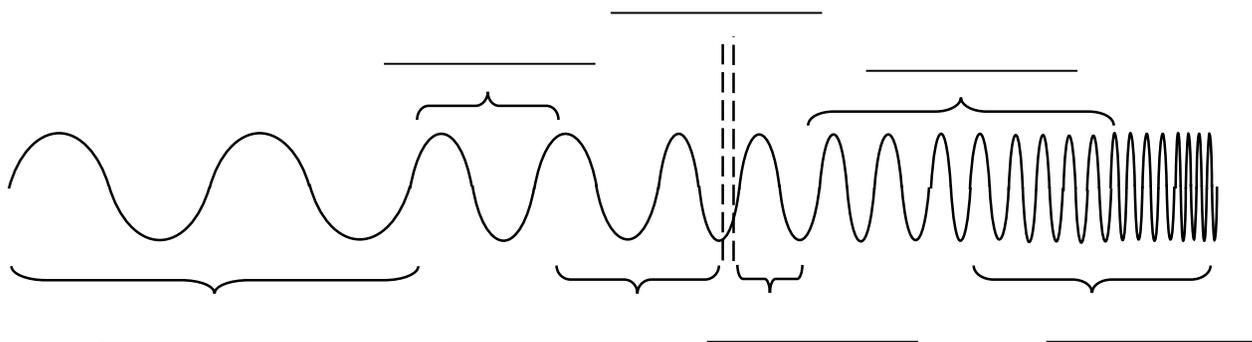
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Electromagnetic spectrum:

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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 \_\_\_\_\_)

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### 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: