

Name: \_\_\_\_\_  
Mr. Willis  
Conceptual Physics: \_\_\_\_\_  
Date: \_\_\_\_\_

Unit VIII  
Electromagnetic Spectrum  
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# VIII

## Video: EMR Fundamentals

1. Electromagnetic \_\_\_\_\_ comes in many forms.
2. Microwaves are waves that transmit \_\_\_\_\_
3. All waves obey the law of \_\_\_\_\_ that states that the angle of incidence is equal to the angle of reflection.
4. Microwaves ovens have \_\_\_\_\_ sides and bottoms, which reflect microwaves toward the food being cooked.
5. Hans Christian Oersted discovered that when a compass came near an electrical wire the needle changed \_\_\_\_\_.
6. Waves change \_\_\_\_\_ when they pass from one medium to another because the waves change speed.
7. Because microwaves are waves, the angle of incidence and the angle of refraction should be \_\_\_\_\_.
8. \_\_\_\_\_ results when an incident wave interacts with a reflected wave.
9. Destructive interference occurs when two waves combine to make a wave with \_\_\_\_\_ amplitude.
10. Microwaves don't always \_\_\_\_\_ food evenly because of destructive interference.
11. Uniform heat in a microwave is distributed by a rotating \_\_\_\_\_.
12. Microwaves are confined inside the oven by metal screens with slits too \_\_\_\_\_ for the waves to pass through.
13. James Clerk Maxwell discovered that \_\_\_\_\_ is an electromagnetic wave.
14. Maxwell also predicted electromagnetic waves and said their speed must be equal to the speed of \_\_\_\_\_.
15. \_\_\_\_\_ are produced by accelerating electric charges.
16. Electromagnetic waves can travel through a \_\_\_\_\_ as well as a medium.
17. \_\_\_\_\_ is just another form of electromagnetic radiation.

18. Microwave speed can be calculated by multiplying the frequency times the \_\_\_\_\_ of the waves.
19. According to the video, there are \_\_\_\_\_ categories of waves in the electromagnetic spectrum classified according to their wavelength.
20. Visible light is a very \_\_\_\_\_ part of the spectrum.
21. Infrared radiation is emitted from \_\_\_\_\_ substances whose molecules are vibrating.
22. Microwaves are used for cooking and for \_\_\_\_\_ and communication systems.
23. Radio waves include both AM and \_\_\_\_\_ waves as well as short-wave radio and television.
24. \_\_\_\_\_ waves are the longest wavelengths in the spectrum and are only good for static.
25. Ultraviolet radiation is responsible for tanning and can kill \_\_\_\_\_.
26. X-rays can penetrate flesh but are blocked by \_\_\_\_\_.
27. Gamma Rays are extremely high-energy radiation that is useful to treat \_\_\_\_\_.
28. The shortest waves in the spectrum belong to \_\_\_\_\_ rays.
29. Electromagnetic radiation exists over a huge range of \_\_\_\_\_.
30. There is a different set of \_\_\_\_\_ for each range. They are all produced by accelerated charges and travel at the speed of light.
31. Even though the waves seem different they all have similar \_\_\_\_\_ in that they all reflect, refract, diffract and interfere.