**Waves for Communication** Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Date: \_\_\_\_\_\_\_\_\_\_\_\_\_ Period: \_\_\_

**Use the materials at the provided link to answer the following questions https://app.wizer.me/learn/SB8S3B**

**Electromagnetic Waves**

1. What three properties make radio waves ideal for communication?
2. What are two systems that use radio waves? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
3. What happens when food absorbs microwaves?
4. Why can microwaves from Earth reach satellites outside the atmosphere?
5. Why is an infrared camera different than a digital camera in your phone?
6. How does infrared light cause heating?
7. What type of communication uses visible light?

**The Electromagnetic Spectrum**

1. Which EM wave has the longest wavelength? \_\_\_\_\_\_\_\_\_\_\_\_\_ Which has the highest frequency? \_\_\_\_\_\_\_\_\_\_\_\_\_

**Radio Waves**

1. Radio waves convert \_\_\_\_\_\_\_\_\_\_\_ waves and transmit over long distances.
2. Different radio stations will broadcast at different \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
3. What are two ways radio stations can modulate the radio waves and send information?

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1. How does a TV use radio waves?

**Microwaves**

1. Compare microwaves (frequency, wavelength, and energy) to radio waves.
2. What two important technologies use microwaves? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ and \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
3. A cell phone is actually a \_\_\_\_\_\_\_\_\_\_\_\_\_\_ transmitter and receiver that uses \_\_\_\_\_\_\_\_\_\_\_\_waves.

**Which is more flexible?**

1. Why are radio waves good at bending around hills?
2. Why must a microwave transmitter and receiver be in line of sight?

**Digital or Analogue?**

1. Which electromagnetic waves can be used for communication?

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1. How can analogue signals vary?
2. How can digital signals vary?
3. Why do digital signals give a better quality of reception?
4. Explain what happens to the noise in an analogue signal when the signal is amplified?

**Which is Better?**

1. List 2 advantages and disadvantages of Analog and Digital signal

|  |  |  |
| --- | --- | --- |
|  | Advantages | Disadvantages |
| Digital |  |  |
| Analog |  |  |

1. Draw a Picture of Each Type of signal.

Analog

Digital