

Name\_\_\_\_\_

Period\_\_\_\_\_

**ELECTROMAGNETIC SPECTRUM PRACTICE**

Use this website and your own research to answer the questions below:

[www.sciencelearn.org.nz/image\\_maps/63-the-electromagnetic-spectrum](http://www.sciencelearn.org.nz/image_maps/63-the-electromagnetic-spectrum)*Fill in the blanks for the following questions with the words in the bank. Some words will be used more than once.*

|                          |                |             |           |            |
|--------------------------|----------------|-------------|-----------|------------|
| Ultraviolet rays         | Visible light  | Wavelength  | X rays    | Microwaves |
| Electromagnetic spectrum | Infrared waves | Radio waves | Frequency | Gamma rays |

- The \_\_\_\_\_ represents the range of different forms of electromagnetic waves.
- \_\_\_\_\_ and \_\_\_\_\_ are used to communicate through WI-FI.
- Heat radiation, also known as \_\_\_\_\_, cannot be seen by your eyes but can be felt by your skin.
- \_\_\_\_\_ and \_\_\_\_\_ can be used to communicate with satellites.
- Because \_\_\_\_\_ have the highest energy of all electromagnetic radiation, they are the most damaging to human tissue.
- Even though they can't kill you, \_\_\_\_\_ can be dangerous to pregnant women due to the fetus inside of them.
- If an electromagnetic wave has a low frequency, it will also have a long \_\_\_\_\_.
- Compared to all other types of electromagnetic radiation, radio waves have the lowest \_\_\_\_\_.
- An overexposure to \_\_\_\_\_ can result in sunburns and skin cancer.
- The only part of the electromagnetic spectrum that humans can see is \_\_\_\_\_.

*Match the kind of Electromagnetic Radiation (on the left) likely to be used in each of the following technologies (on the right)*

| Wave Type |                    | Technology |                                                                            |
|-----------|--------------------|------------|----------------------------------------------------------------------------|
|           | 11. X rays         | A          | TV broadcast signals                                                       |
|           | 12. Microwaves     | B          | Use in doctors and dentist offices to see past a person's skin and muscles |
|           | 13. Gamma rays     | C          | Cell phone                                                                 |
|           | 14. Radio waves    | D          | Lamp used to warm a baby chick                                             |
|           | 15. Infrared waves | E          | Used by an oncologist (doctor who studies and treats cancer).              |

*What are the differences between the different types of electromagnetic radiation?*

- Which has a longer wavelength – visible or infrared radiation?
- Which contains more energy – visible or infrared radiation?
- Which has a higher frequency – visible or infrared radiation?
- What happens to the wavelength and frequency as you move from radio waves to gamma rays on the electromagnetic spectrum?