**What is the electromagnetic spectrum?**

**Glencoe virtual lab**

**Intro**

When \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ particles move, electromagnetic waves are produced. These waves travel outward, or radiate, from the charged particles. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ is an electromagnetic wave.

All electromagnetic waves travel at the same speed in a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ but their \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ and \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ vary.

Which of the 2 types of waves is an electromagnetic wave?

**Data Collection**

|  |  |  |
| --- | --- | --- |
| Frequency (hertz) | Wavelength (meters) | Type of Wave |
| 1 x 107 | 30 |  |
| 5 x 109 | 6 x 10-2 |  |
| 7 x 1013 | 4.3 x 10-6 |  |
| 5 x 1014 | 6 x 10-7 |  |
| 6 x 1015 | 5 x 10-8 |  |
| 3 x 1018 | 1 x 10-10 |  |
| 4 x 1019 | 7.5 x 10-12 |  |

**Analysis**

1. As you move from left to right on the electromagnetic spectrum, what happens to frequency and wavelength?
2. Which type of electromagnetic waves has more energy, an ultraviolet wave or an infrared wave? Explain how this is determined from looking at the electromagnetic spectrum.
3. Which type of electromagnetic wave is more dangerous, a low-frequency wave or high frequency? Explain.