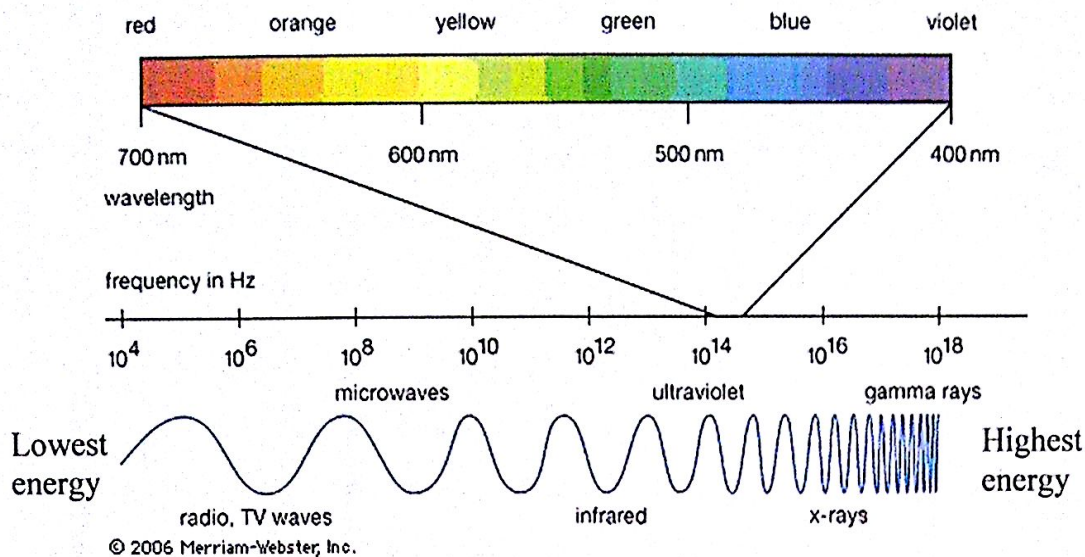


ELECTROMAGNETIC SPECTRUM NOTES



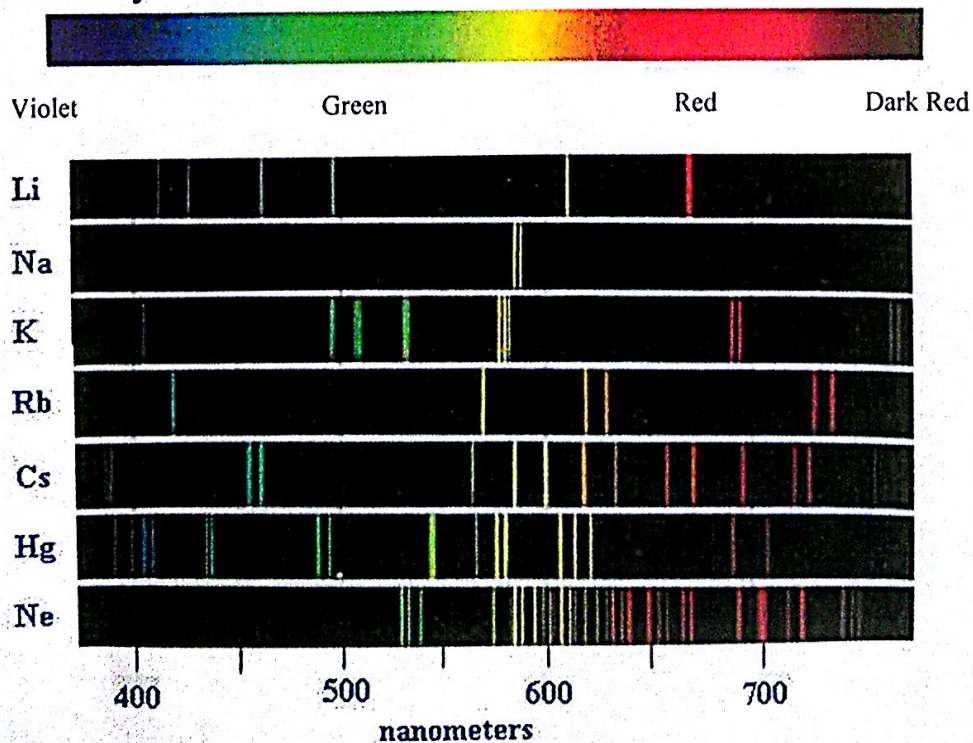
Line spectra

All atoms give off **light** when **heated**, although sometimes this light is not visible to the human eye. A **prism** can be used to split this light to form a **spectrum**, and each element has its own distinctive line spectrum. This technique is known as **spectroscopy**. Some examples of what line spectra look like are shown here:

Scientists have used line spectra to discover new elements. In fact, the discovery of some elements, such as **rubidium** and **caesium**, was not possible until the development of spectroscopy. The element **helium** was discovered by studying line spectra emitted by the Sun.

Black Body and Line Spectra

Black Body



Name _____ Date _____ Period _____

EM SPECTRUM WORKSHEET

1. Rank the types of waves from longest to shortest wavelength: _____, _____, _____, _____, _____, _____, _____.
2. Which color has the most energy? _____
3. Which color has the least energy? _____
4. On the EM Spectrum, which type of wave has the most energy? _____
5. On the EM Spectrum, which type of wave has the least energy? _____
6. On the EM Spectrum, which type of wave has the highest frequency (shorter waves)? _____
7. On the EM Spectrum, which type of wave has the lowest frequency? _____
8. Yellow light has a longer wavelength than green light. Which color of light has the higher frequency?

9. Green light has a lower frequency than blue light. Which color of light has a longer wavelength?

10. The higher the frequency, the _____ (*higher / lower*) the energy. This is an example of a/an _____ (*inverse/direct*) relationship.
11. The higher or longer the wavelength, the _____ (*higher / lower*) the energy. This is an example of a/an _____ (*inverse/direct*) relationship.
12. The longer the wavelength, the _____ (*higher / lower*) the frequency, is a/an _____ (*inverse/direct*) relationship.