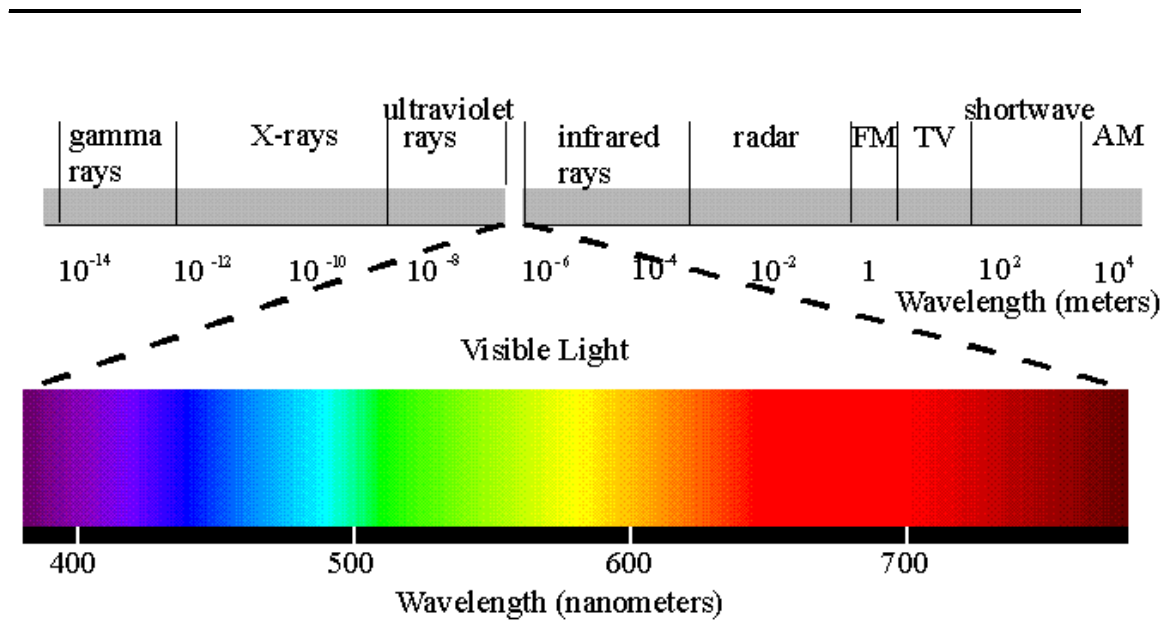


## The Photosynthetic Reaction

Using the information given to you in this packet and your knowledge of physical science, complete the following questions based on the electromagnetic spectrum. Lastly you will be using this information and your understanding of photosynthesis and respiration complete the following questions exploring the concepts of spectroscopy in organic processes.

Recall the equation for photosynthesis:



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[Visual Stimulus](#)

[www.yorku.ca/eye/spectru.htm](http://www.yorku.ca/eye/spectru.htm)

1. Where does visible light fall within the electromagnetic spectrum?
2. Which side of the spectrum has the longest waves? How do you know?
3. What does the term wavelength mean?

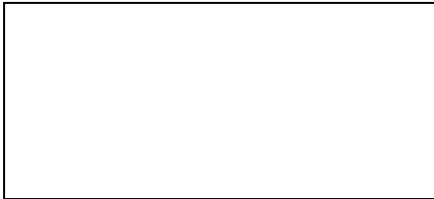
The following equation illustrates the relationship between wavelength and frequency.

$$\text{frequency} = \frac{c}{\lambda}$$
$$\lambda = \frac{c}{\text{frequency}}$$

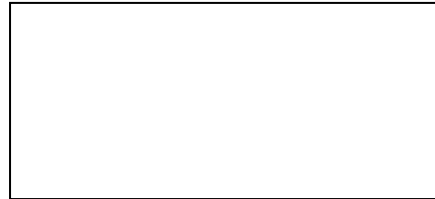
<http://www.1728.com/freqwave.htm>

4. If the frequency of a wave increases what then happens to the length?
5. If the frequency of a wave decreases what happens to its length?
6. Draw a picture of each type of wave below:

7

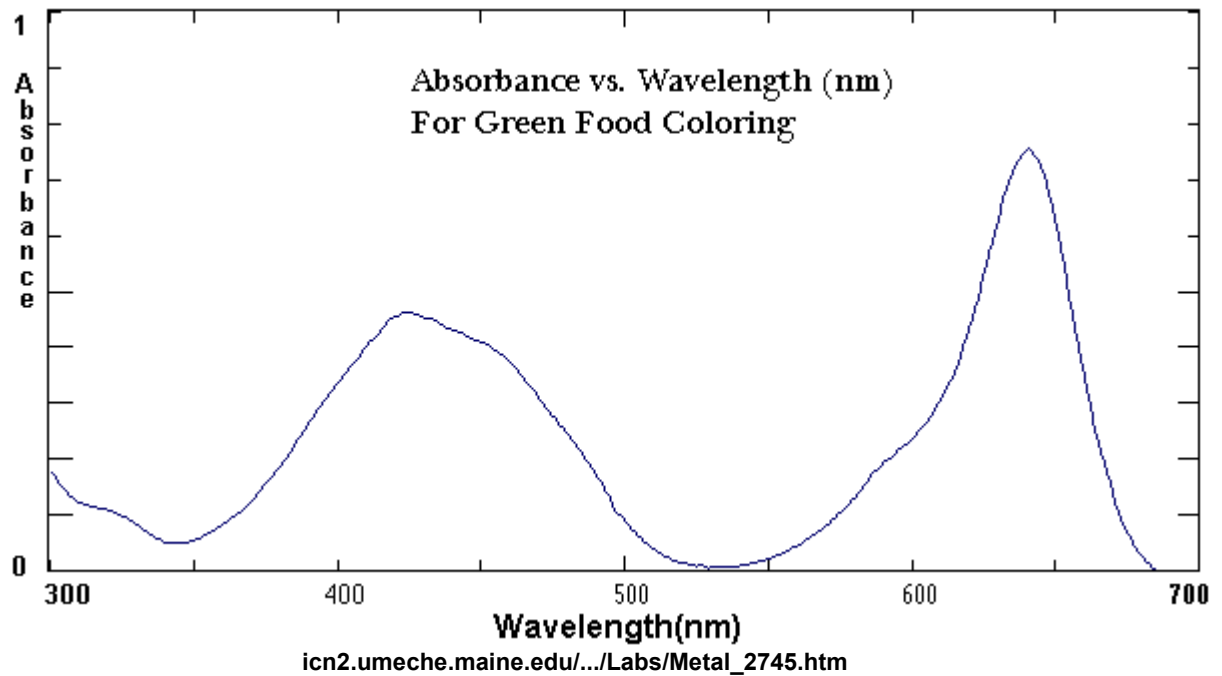


5



7. Draw the type of wave you might expect to find in the violet region of the spectrum.





**This diagram illustrates the range of wavelengths the color green absorbs.**

8. In which two color regions does green absorb the most waves? How do you know?

9. If plants' primary source for capturing sunlight is green, what then must be the primary color emitted by the sun?

10. Draw a picture of the type of wavelength you might find in the green region of the visible spectrum?

