**STATION 1: Period**

**Period= Sec OR T= \_\_\_1\_\_\_\_   
 Cycles Frequency**

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1. What is the unit for period? What is the symbol used to represent period?

2) What is the relationship between frequency and period? What does this mean?

3) A pendulum makes exactly 50 vibrations in 10.0 s. What is its period? (0.2 s)

4) A clock ticks 3 times every 6 seconds. Find the period. *( 2s)*

5) A frequency of 7 Hz would be equivalent to what period? (0.14 s)

6) A man exercising can do 18 pushups in 22 seconds. Find the period. *(1.22 s)*

7) If 14 waves hit a dock every 26 seconds, what is the period?

*( 1.86 s)*

8) Current switches directions 180 times every 3 seconds. What is the period? (0.016 s)

**STATION 2: Frequency**

**Frequency = Cycles OR f = \_\_\_1\_\_\_\_   
 Sec Period**

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1) What is the SI unit for frequency? What is the symbol used to represent frequency?

2) What is the relationship between frequency and energy? What does this mean?

3) A pendulum makes exactly 50 vibrations in 10.0 s. What is its frequency? *(5 Hz)*

4) A clock ticks 3 times every 6 seconds. Find the frequency.

*( 0.5 Hz)*

5) A man exercising can do 18 pushups in 22 seconds. Find the frequency. *(0.81 Hz)*

6) If 14 waves hit a dock every 26 seconds, what is the frequency?

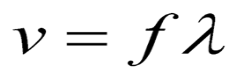
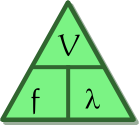
*( 0.54 Hz)*

7) Current switches directions 180 times every 3 seconds. What is the frequency? (60 Hz)

8) A period of 32 second would be equivalent to what frequency?

(0.03 Hz)

**STATION 3: Wave Speed**

**Wave Speed** **** ** Speed of light c =**3 x 108 m/s

### c = f λ

1. What is the wave speed of all electromagnetic waves?

2) Orange light has a wavelength of 5.97 x 10-7 m. What is its frequency? *(5.03x1014Hz)*

3) What is the wavelength of a sound wave traveling at 340 m/s with a frequency of 60 Hz? *(5.66 m)*

4) What is the frequency of a pendulum that is moving at 10 m/s with a wavelength of 0.5 m? *(20 Hz)*

5)A wave with a frequency of 30 Hz travels through rubber with a wavelength of 0.4 m. What is the speed of the wave? *(12 m/s)*

6) Determine the frequency of a microwave that is 0.15 m in length.

*(2 x109 Hz)*

7) Calculate the wavelength given the frequency of an electromagnetic wave of 5.46 X 1014 Hz. *(5.49 x 10-7m)*

8) Calculate the frequency of light with a wavelength of 4.50 x 10-10 m.

*(6.67 x1017 Hz)*

9) If violet light has a frequency of 6.60 x 1014 Hz. What is its wavelength? *(4.54 x10-7 m).*

**STATION 4: Mixed Practice**

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| 1) Determine the frequency of a radio wave with a wavelength of 400 m. (7.5 X105 Hz)  2)Draw and label the two waves below:    3) How many complete waves are shown in the wave below?  Image result for transverse wave diagram  4) What type of interference pattern overlaps **crest** to **crest**? What type of interference pattern overlaps **crest** to **trough**?    5) Which of the following is NOT a similarity between transverse and longitudinal waves?  a. Both transfer energy, not matter  b. Vibrations are the source of both waves c. Both require a medium  d. Both can be represented with a slinky/loosely coiled spring  6) What type of wave is produced by an airplane going faster than the speed of sound?  a. shock wave b. bow wave  c. water wave d. transverse wave | 7. What type of wave is produced by a boat going faster than the waves its producing?  a. bow wave  b. water wave  c. transverse wave  d. shock wave  8. The Doppler Effect occurs when a source of sound moves:    a. away from you.  b. towards you.  c. both a and b  d. none of the above  9. Glass is \_\_\_\_\_\_ to light but \_\_\_\_\_\_ to UVB (ultraviolet B).  Use the EM spectrum to answer the questions 10- 12  http://web.princeton.edu/sites/ehs/osradtraining/radiationproperties/spectrum.jpg  10). Which Color of visible light has the longest wavelength, lowest frequency and lowest energy?  11) Which color of visible light has the shortest wavelength, highest frequency and highest energy?  12) Compare and contrast **microwaves** and **gamma rays**.  a. which wave has the lower frequency?  b. which wave has the shorter wavelength?  c. which wave has the least energy? |