Guided Reading Chapter 24 Section 1

1. _____ (*Linear, Harmonic*) motion goes from one place to another without repeating, while _____ (*Linear, Harmonic*) motion repeats over and over.

2. A _____ is one unit of repeating motion.

3. A _____ is a device that swings back and forth. Use the diagram at the bottom of the page to describe the cycle of a pendulum.
   The cycle starts with
   (1)

   Next, the cycle continues with
   (2)

   And
   (3)

   The cycle ends when the pendulum moves
   (4)

4. An *oscillator* is a physical system that has repeating cycles or harmonic motion. Place a check mark next to the following systems that are examples of oscillators.
   _____ A child on a swing
   _____ A wagon rolling down a hill
   _____ A vibrating guitar string

5. Match the following terms with the correct definition.

_____ Hertz	A. How often something repeats, expressed in hertz.
_____ Frequency	B. The time it takes for each complete cycle.
_____ Period	C. The unit of frequency. One hertz is one cycle per second.

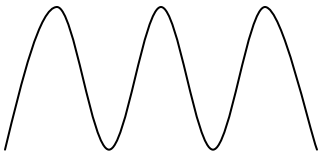
6. Write the equations for period and frequency be sure to include what each variable stands for and the unit used for each.

7. Period and frequency both yield the same information, so how do you choose which formula to use?

8. Draw a picture of a pendulum with large amplitude and one with small amplitude.

9. Systems that oscillate move back and forth around a center or _____.

10. Use the picture of the wave below and label the highest and lowest points of the wave. Using this information, and figures in the text, define the amplitude of the wave.



11. _____ slows a pendulum down, just as it slows all motion.

_____ describes the gradual loss of amplitude.

12. Use Figure 24.6 to compare and contrast a linear motion graph to a harmonic motion graph.

13. Use the graphical on the center of the page to answer the following questions. The period of the motion displayed is equal to _____ seconds. The positive amplitude is _____ centimeters and the negative amplitude is _____ centimeters.

14. An oscillator will have the same period and frequency each time you set it moving, and are called _____ _____, the frequency at which a system naturally oscillates.

15. What two things can change an oscillator's natural resonance?

16. What cannot change an oscillator's natural resonance?

17. Define periodic force.

18. Define resonance.