

Name Kay Class# _____ Date _____

19-1 Notes worksheet

HARMONIC MOTION

1. Linear motion gets us from one place to another while harmonic motion is motion that repeats.
2. A cycle is a unit of motion that repeats over and over. An example is :
one spin of a bicycle wheel is a cycle
3. Draw a complete cycle of a pendulum, use arrows and include at least 4 diagrams.



4. Motion that repeats regularly is an Oscillation. A system with harmonic motion is called an oscillator. An example is solar system because each planet in harmonic motion around sun.
5. Vibration is a word used for back and forth motion.

Examples of oscillators

Music - speaker vibrates → pressure oscillations in the air → vibrate ear bones → nerves to the brain.

Color - motion of electric and magnetic fields → we see the electrons of the molecules oscillating

Cell phones work at 100 million cycles per second

6. The time for 1 cycle to occur is called a period.
7. The term frequency means the number of cycles per second.
FM radio 95 million - 107 million, human voice 100 - 2000
8. The unit of 1 cycle per second is called a hertz (we hear ~ 20 - 20000 Hz)

CALCULATING HARMONIC MOTION

(put in flipbook)

$$\text{Period (sec)} = \frac{1}{\text{Frequency (hertz)}} \quad \text{or} \quad T = \frac{1}{f}$$

$$\text{Frequency (hertz)} = \frac{1}{\text{Period (sec)}} \quad \text{or} \quad f = \frac{1}{T}$$

9. The amplitude is the size of the cycle. In mechanical systems it is often measured as the distance or angle.
10. The amplitude is the maximum distance an oscillator moves away from its equilibrium position.
11. The gradual loss of amplitude due to friction is called damping.

IN YOUR NOTEBOOK

Answer questions a and b on page 417. Show all of your work.

Answer the 4 section review questions on page 418. Use complete sentences.