Name _____ Date _____ Class _____

Note-taking Worksheet

Sound

Section 1 What is sound?

A. Sound is produced by _____.

B. A sound wave is a _____ wave in which air molecules move back and forth along the direction the sound wave is moving.

1. A soundwave is created by a _____of compressions and rarefactions.
   - **a.** A _____ is a region of higher density air molecules.
   - **b.** A region of lower density air molecules is called a _____.
2. Sound waves can be described by their _____ and _____.

C. Sound waves can travel through various materials at different _____.

1. Sound travels _____ through solids, and _____ through gases.
2. Sound travels faster in a _____ substance.

D. _____ is the human perception of how much energy a sound wave carries.

1. Sound waves with greater _____ carry more energy and sound louder.
2. The decibel (db) scale describes the energy carried by sound waves.

E. _____—how high or low a sound seems

1. Pitch is related to frequency and wavelength; the _____ the frequency and the _____ the wavelength, the _____ the pitch.
2. The length and thickness of _____ help determine the pitch of the human voice.
   - **a.** Shorter, thinner chords vibrate at _____ frequencies than longer or thicker ones.
   - **b.** People can vary their vocal pitch within a limited range by using the _____ in the throat to stretch the cords.

Meeting Individual Needs

Note-taking Worksheet (continued)

F. _____—a sound wave reflected off of a hard surface

1. The delay in reflection of sound is used to measure _____, such as in sonar systems which map the ocean floor and other undersea features.
2. Some animals use _____ to navigate and hunt.

G. _____—change in frequency that is due to the motion of a sound source or listener

H. Sound waves _____, which means they can bend around obstacles or spread out after passing through a narrow opening.

I. Sound waves can be used in _____ to treat disorders or make an image of the body's interior; ultra-sound uses _____-frequency sound as an alternative to some surgeries.

Section 2 Music

A. _____ is a group of sounds that have been deliberately produced to make a regular pattern.

1. _____—frequency at which a particular object will vibrate
   a. Natural frequency depends on the size and _____ of the object and the material it is made from.
   b. Musical _____ use the natural frequencies of strings, drumheads, or columns of air to produce notes.
2. _____ occurs when an object is made to vibrate at its natural frequency by absorbing energy from a sound wave or another object vibrating at this frequency.

B. The _____ is the lowest frequency produced by a particular object; **overtones** are higher frequency waves that are multiples of the fundamental frequency.

C. Musical instrument—_____ that produces a musical sound

D. _____ instruments produce music by making strings vibrate; a hollow chamber or box, called a resonator, usually amplifies the sound.