

Solutions to Conceptual Questions of Chapter 11

2. Piano, guitar, and violin strings produce transverse waves when they are plucked or bowed—they do not produce longitudinal sound waves. The transverse motion of the strings causes longitudinal sound waves to be produced in the surrounding air.
4. The wavelength of the fundamental will decrease.
 - (b) The frequency of the fundamental will increase.
 - (c) The wave velocity is constant, thus the time for a pulse to travel the length of the string will decrease.
 - (d) The maximum velocity of a point on the string is proportional to the frequency and will therefore increase.
 - (e) The maximum acceleration of a point on the string is proportional to the square of the frequency and will therefore increase.
9. Since transverse waves do not travel through the core while longitudinal waves do, some part of the core is a molten, viscous liquid that cannot support the transmission of a transverse wave. A longitudinal wave can create compressions and rarefactions in the liquid and travel on through.