

**Definitions**

Pulse (135)	Electromagnetic Wave (144)
Hard Reflection (135)	Mode Number (136)
Soft Reflection (135)	Wavelength (136)
Standing Wave (136)	Tension (138, RS III)
Transverse Wave	Linear Density (137)
Longitudinal Wave	Compressibility (140)
Node (136)	Harmonics (141)
	Octave (143)

**Discoveries**

1. Superposition Principle: (135)
2. Formula relating wavespeed, wavelength, and frequency for periodic waves: (136)
3. What part of a standing wave is always found:
  - a. -at a place where hard reflection occurs?
  - b. -at a place where soft reflection occurs? (136)
4. Let "N" represent the "mode number" in a one-dimensional standing wave pattern. What series of "N" values is possible under the following conditions? (138, 139)
  - a. hard reflection at each end:
  - b. hard reflection at one end, soft at the other:
  - c. soft reflection at each end:
5. Name familiar examples for each of the conditions described in #4. (138, 139)
6. Formula for string wave speed in terms of tension and linear density: (138)
7. The speed of electromagnetic waves depends on the \_\_\_\_\_ and \_\_\_\_\_ of the material through which the waves travel. Such waves can travel very well through a vacuum, and all vacuums have the same properties, independent of motion. Therefore all electromagnetic waves in vacuum have \_\_\_\_\_ speed, regardless of the motion of the source or observer. (the same, different) (144b)