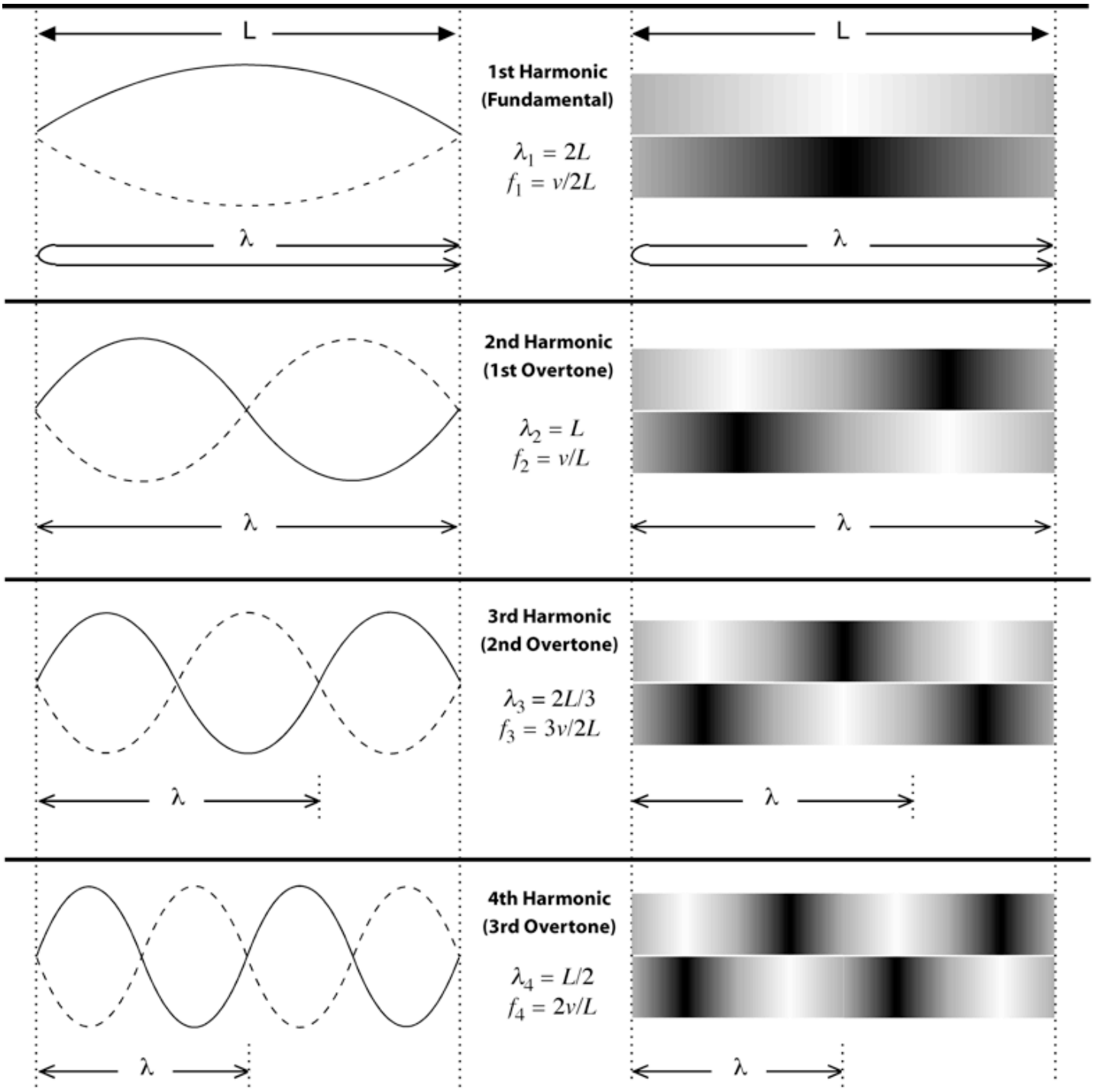
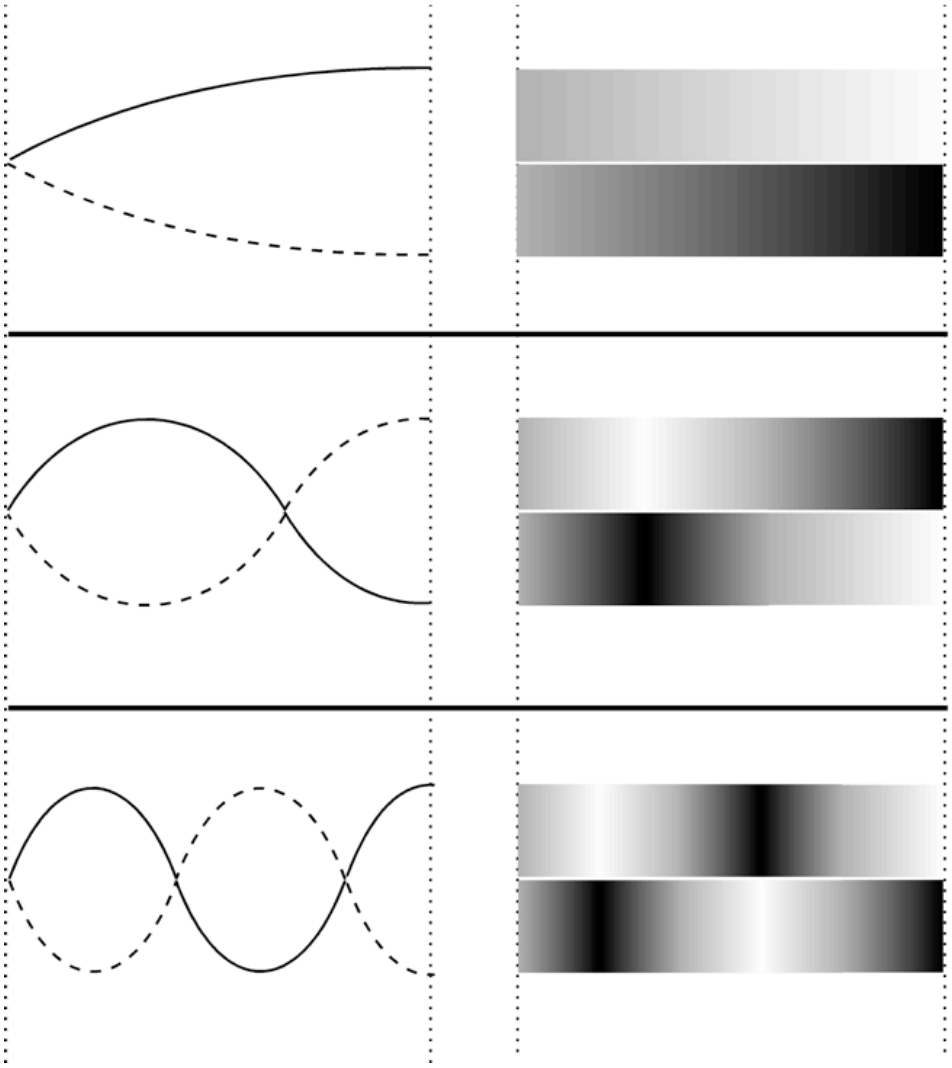
PhyzGuide: Standing Waves

Standing waves are the result of reflection and interference (superposition) of waves in a medium. Transverse standing waves can be made in a rope; longitudinal standing waves can be formed in a volume of air. In the diagrams below, standing waves are made with a cord of length L or a closed volume of air of length L. The speed of the wave is v, and the wavelength of the standing waves is λ. Each illustration consists of two snapshots of the medium (rope or air) taken a half-cycle apart.

BOTH ENDS FIXED



ONE END FIXED, ONE END OPEN



BOTH ENDS OPEN