Section Summary

17.1 Understanding Diffraction and Interference

- The wavelength of light varies with the refractive index of the medium.
- Slits produce a diffraction pattern if their width and separation are similar to the wavelength of light passing through them.
- Interference bands of a single-slit diffraction pattern can be predicted.
- Interference bands of a double-slit diffraction pattern can be predicted.

17.2 Applications of Diffraction, Interference, and Coherence

- The focused, coherent radiation emitted by lasers has many uses in medicine and industry.
- Characteristics of diffraction patterns produced with diffraction gratings can be determined.
- Diffraction gratings have been incorporated in many instruments, including microscopes and spectrometers.
- Resolution has a limit that can be predicted.