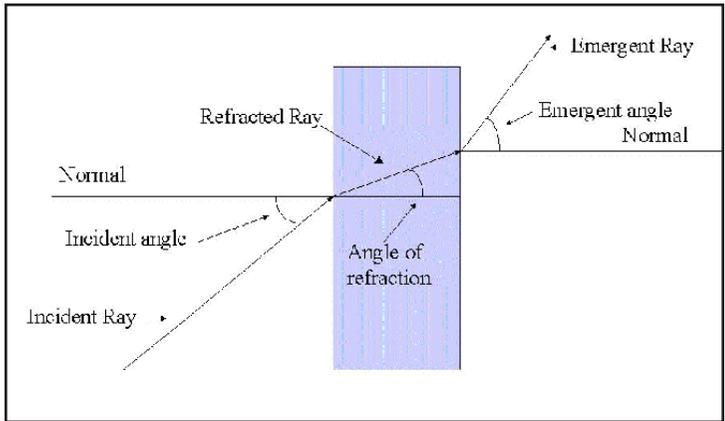


Table 2-1

Index of Refraction for Common Lens Material

Material	Index
CR-39	1.498
Glass, crown	1.523
Spectralite (SOLA Optical USA, Petaluma, Calif)	1.537
High index 1.56 (resin)	1.556
Polycarbonate	1.586
High index 1.60 (resin)	1.60
High index 1.66 (resin)	1.66
Glass, barium crown	1.616

Figure 2-4. Snell’s Law of Refraction.



Light travels slower through some materials than others, depending on the density of the material. The denser the material, the slower light travels through it. The slower that light travels through a specific material, the higher the material’s refractive index and the greater its refracting ability (Table 2-1).

High-index materials bend or refract light in the same manner as conventional materials, but with less mass due to the density of the material. High-index materials are denser than the conventional lens materials that cause light to travel at a slower rate. This slower rate of travel ultimately allows the lens to refract light in the same manner as the conventional material, but with less mass. Because of this, patients are able to appreciate thinner, lighter weight lenses that refract light in the same manner as conventional lens materials.

CL

Snell’s Law of Refraction

In 1621, a Dutch astronomer and mathematician named Willebrord van Roijen Snell developed a theory of how light travels through a transparent substance. This theory is known today as “Snell’s Law of Refraction.” Although Snell did not publish his theory of refraction (it was later published by French mathematician and philosopher René Descartes as “Descartes’ Law of Sines”), Snell’s Law of Refraction is still used to explain how light is refracted by an ophthalmic lens (Figure 2-4).

Snell’s Law explains that the constant relationship between the angle of incidence (the angle which is created between oblique light rays entering the medium and normal light rays),