CHECK YOUR LEARNING

Suggested Answers

1. Both the human eye and a camera have: (1) a converging lens that casts a real, smaller-than-life, inverted image, (2) a means for focusing images of objects that lie at different distances and (3) a light-sensitive sensor that "captures" the image.
2. The eye simply sends nerve signals through the optic nerve to the brain. The brain interprets these signals and creates the image that we see in our mind.
3. **(a)** Far-sighted individuals see close objects poorly, whereas near-sighted individuals see distant objects poorly.
   (b) A converging lens will correct far-sightedness. A diverging lens will correct near-sightedness.
4. **(a)** One shape is a positive meniscus and the other is a negative meniscus.
   (b) A meniscus is more cosmetically appealing than basic lenses because the lenses are much thinner than basic lenses.

positive meniscus **negative meniscus**

5. **(a)** The condition is presbyopia and it is caused by a loss of elasticity in the lens of the eye as a person gets older.
   (b) Presbyopia is a form of far-sightedness and thus can be corrected with a positive (converging) meniscus.
6. No. Starting a fire in this manner requires a lens that concentrates light rays by converging them, and near-sightedness is corrected with diverging lenses. The image below shows that a diverging lens like those used in glasses to correct near-sightedness will not concentrate the light, as would be necessary.