GLOSSARY

Braille – A system of raised dots that represents the alphabet and allows those without sight to read.

Cataract – A partial or complete clouding of the lens of the eye.

Cones – Cells in the retina which allow color vision.

Cornea – The transparent coating over the iris and pupil through which light enters the eye.

Farsighted – A vision impairment which makes it difficult to see close objects clearly.

Glaucoma – A disease of the eye caused by internal pressure when fluids are unable to drain naturally. The symptoms range from pain due to pressure, to tunnel vision.

Iris – The colored part of the eye which controls the size of the pupil and the amount of light entering the eye.

Lens – The part of the eye that, together with the cornea, collects and focuses light on the retina.

Macular Degeneration – A disease of the retina which darkens the center of vision and allows only peripheral vision.

Optic Nerve – The nerve the passes information from the eye to the brain.

Optometrist – A vision specialist who examines and treats visual defects.

Peripheral Vision – The area of sight around the edges of the field of vision.

Pupil – The dark area at the center of the iris through which light passes on its way to the retina.

Retina – The light-sensitive area at the back of the eye where the lens focuses images.

Rods – Light sensitive cells in the retina which function in dim light.

Sclera – The dense outer tissue which encloses the eyeball (except for the cornea).

Tunnel Vision – A condition in which the field of vision is narrowed like a keyhole.

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***Advanced* Teachers Guide**

SYNOPSIS:

There are over 42 million people worldwide who suffer from total or partial loss of vision and are defined as being blind. This program explains how the human eye works, examines some of the major causes of blindness and shows how medical science and technology are helping people with impaired vision lead satisfying and productive lives. New surgical procedures and advanced image processing technologies are also presented in this program.

CURRICULUM UNITS:

- Biology
- Computer Science
- General Science
- Health
- Psychology
- Social Science

CAREER OPPORTUNITIES:

- Civil Engineer
- Computer Designer
- Occupational Therapist
- Ophthalmologist
- Optician
- Optometrist

PROGRAM OVERVIEW:

The human eye is a complex organ. Each of its parts plays a crucial role in vision. The entire eye is ball-shaped. It has a tough outer layer called the sclera. The vitreous humor, a transplant jelly, fills the eyeball and maintains the shape of the eye by pushing against the sclera. In order for us to see, light must be reflected, or bounced, from objects to our eyes.

Damage to any of these parts or to the reception and interpretation site in the brain can cause vision problems. Not all vision impairments can be corrected through medical technology. Scientific advances can make a big difference in the lives of people with severe visual impairments. This program shows traditional and high-tech aids.

ISSUES & CRITICAL THINKING:

1. After showing the program, ask the class the following:
   a) What does it mean to be visually impaired?
   b) What does it mean to be nearsighted or farsighted?
   c) What part of the eye is affected by cataracts? Can anything be done about them?
   d) What are some aids used by people with visual impairments?
   e) How can buildings be designed to help visually impaired people?

2. Draw a diagram of the eye or get a model. Identify the parts of the eye and their functions. Discusss some vision problems associated with the parts of the eye.

3. Guide dogs are raised in volunteer homes across the country for this first year and then returned for training. Assign a group of students to report on the guide dog program and discover if any local families are raising a guide dog-in training.