

In the *Optical Diagnostics CPU*, students examine the anatomy and physiology of the eye, and differentiate between normal and abnormal anatomy of the eye. Students determine visual acuity and calculate actual diameter using visual mapping. Other optical diagnostic procedures such as field of vision, astigmatism, and color vision tests are performed.

## Areas Covered

- ◆ Career opportunities in the field of optical health
- ◆ Anatomy of the eye and related bodily structures
- ◆ Examination of disorders, deficiencies, and diseases of the eye
- ◆ Proper patient interaction, management, and testing
- ◆ Discovery of how light refraction can correct various vision problems
- ◆ Examination of ophthalmic instruments and techniques
- ◆ The creation of corrective lenses
- ◆ Asepsis techniques in ophthalmic surgery
- ◆ How and why optical illusions occur
- ◆ Skills and knowledge to aid students in various HOSA competitions



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## Career Pathway Unit Includes:

Optical Diagnostics CD with a Digital Instructor's Overview Booklet, Anatomy of the Eye Chart, Color Blindness Chart, Cow Eye, Dissection Kit, Eye Model, Fundamentals for Ophthalmic Technical Personnel Textbook, Skills Cart™, Optician Bench, Visual Perception Kit

# Optical Diagnostics Goals & Activities

- Acquire an understanding of optical diagnostics as a health care field.
- Explore major careers associated with the optical field and the responsibilities, education, and licensing requirements for each.
- Research laws pertinent to opticians, optometrists, and physician extension staff.
- Write a short paper discussing a career field, using information gained through research.
- Explore the structure of the orbital, muscular, and support elements of the eye.
- Discover how the brain interprets messages received by the eye.
- Dissect a cow eye and explore its structure and function.
- Describe and practice safety procedures related to dissection.
- Understand the structural differences and similarities between cow eyes and human eyes.
- Explore the internal elements of the human eye and the roles they perform.
- Examine common refractive errors and their causes.
- Discover and define visual acuity, astigmatism, and color deficiencies.
- Identify the importance of proper test administration in subjective data testing.
- Administer and perform subjective data vision tests.
- Discover the causes, symptoms, and treatments for common ophthalmic diseases.
- Explore the types of information included in a patient history, essential information obtained through interview, and how to obtain such information tactfully.
- Practice patient management procedure by completing paperwork and conducting a roleplay patient interview.
- Examine universal guidelines and ophthalmic guidelines to prevent disease transmission.
- Explore the various components of an eye exam, including standard ophthalmic equipment.
- Examine several fundi, both healthy and diseased.
- Create an optical presentation.
- Discover the fundamentals of light refraction.
- Explore the field of opticianry, including commonly used terms and concepts.
- Discuss the use of lenses to correct astigmatism and weakened eye muscles.
- Discover the history and meaning of terms and abbreviations represented on lens prescriptions.
- Interpret lens prescriptions.
- Examine edging and mounting techniques.
- Experiment with lenses and refraction.
- Observe the characteristics of convex plano-sphero, and spherical lenses.
- Produce inverted images from near and far objects.
- Discover the mathematical equations used to determine focal point.
- Determine an average focal point using experimental results and various mathematical methods.
- Explore the development of ophthalmologic surgical techniques.
- Examine several types of common refractive surgeries.
- Discover proper asepsis methods.
- Conduct a short surgical scrub.
- Conduct research regarding a recent advance in ophthalmic technology.

