



Eye Health and Safety Program
TEACHER CLASSROOM PRESENTATION GUIDE



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Eye Health and Safety Program

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This program is recommended for grade levels:

Third, Fourth and Fifth

Subject:

Eye Health and Safety

Duration:

There are five lessons to be presented across five classroom sessions or at the discretion of the teacher. Each lesson includes an overview, discussion points, and a minimum of two activities requiring approximately 30 minutes of class time each.

This curriculum has been aligned with National Health, National Science and National Physical Education Standards



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Lesson 1: Eyes – Our Window to the World

Eyes – Our Window to the World emphasizes the role of vision in the realm of the five senses. Although approximately 80 percent of our learning is acquired through sight, all senses work together to enhance our learning experiences.

Lesson Objectives:

- ★ Students will associate the eyes with the ability to see, and understand vision as one of the five senses.
- ★ Students will learn basic anatomy of the eye and how the visual system works.
- ★ Students will learn how different animals and other creatures' eyes differ from humans'.

Discussion Points – PowerPoint

Our Senses

Slide 1 We have five senses that increase our ability to learn and experience the world: taste, hearing, touch, smell and sight. Sight is often thought of as the most important sense because we use our eyes constantly to learn more about the world around us.

Slide 2 80 percent of what we learn is through sight. Our eyes allow us to see many things: big or small, near or far, smooth or textured, and even colors and dimensions. Approximately 75 percent of the school day is spent in visual activities – primarily reading and writing.

Slide 3 We have stereoscopic or 3-Dimensional vision. Each of our eyes sees from a different point of view. As a result we can determine length, width, and depth.

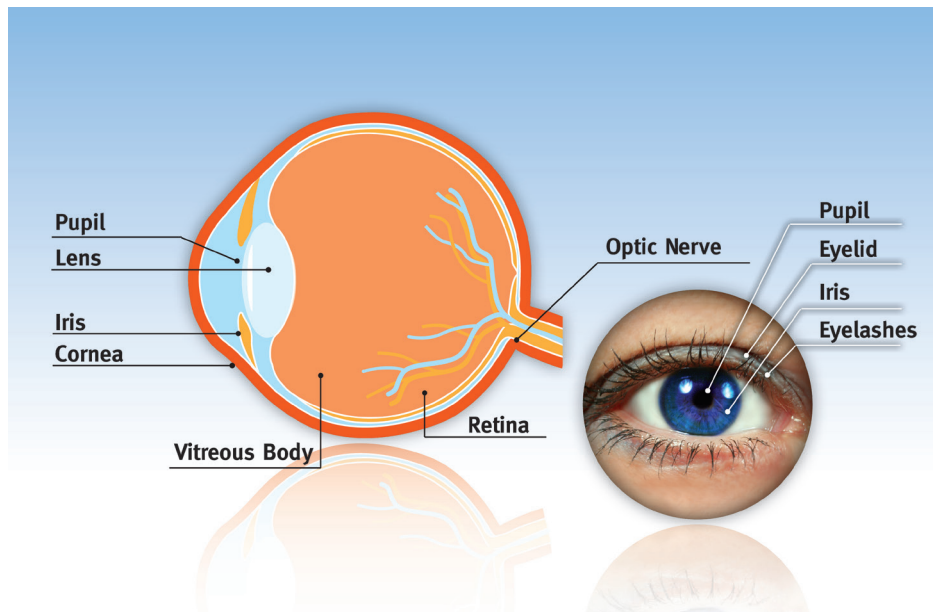
Slide 4 Humans were initially hunters, so our eyes enabled us to stalk and kill prey and distinguish one color from another. Scientists learn facts about everything in the world by making careful observations. Today we use our eyes to do things such as read, watch TV, play computer games, etc.

Class Discussion:

Have students discuss the ways in which they use their sense of sight every day. Discuss how students use observation to learn about the world around them.

Eye Anatomy and the Visual System

Slide 5 Let's take a look at the parts of the eye and how they work together to form vision.



The **Pupil** is the black circle in the center of the iris that lets light enter the eye. The pupils get bigger and smaller to allow different amounts of light into the eye.

The **Iris** is the colored part of the eye that controls the size of the pupil.

The **Cornea** is the clear covering that protects the iris and pupil.

Eyelashes and Eyelids protect the eyes. Blinking spreads tear fluid over the eyes to prevent them from drying out.

Our eyes contain many more parts than the ones we can see by looking in the mirror.

The **Lens** sits behind the pupil. It focuses light that comes into the eye to form an image on the retina.

The **Vitreous Body** is the colorless, gelatin-like material that fills the eyeball between the lens and the retina.

The **Retina** sits at the back of the eye and is made up of light-sensitive cells. The image that the retina receives is actually upside down. The retina sends the image to the brain, which flips the image right-side up, allowing us to see.

The **Optic Nerve** carries messages from the retina to the brain.

Slide 6 The human eye works much like a camera. The pupil is similar to a camera's opening that lets in light; the eye's lens is like a camera's glass lens, which focuses the light; and the retina is like film, which receives a picture.

Class Discussion:

- ★ In which direction do you see well? (Straight ahead or to the side) We see well when we look straight ahead because our eyes work together.
- ★ Can you see more by moving just your eyes up, down, left or right?
- ★ How much more can you see when you move your head as well as your eyes?
- ★ How does the pupil work?
The pupils control the amount of light that goes into our eyes.

Learning Assignment: The Eye and How We See

Materials Needed:

- ★ One copy of *The Eye and How We See* activity sheet per student
- ★ Pencils/pens

Instructions:

1. Distribute *The Eye and How We See* student activity sheet and allow time for students to complete the worksheet in the classroom, or for homework assignment.
2. Review answers with class.

Classroom Activity: Match the Eyes

Materials Needed:

- ★ Paper or poster board
- ★ Crayons or markers

Instructions:

1. As a follow up to the previous activities, ask each student to create a drawing of his or her own eyes.
2. Number the drawings and display them on a classroom or hallway bulletin board.
3. Encourage students to guess whom each pair of eyes belongs to and award a small prize to the student who correctly identifies the greatest number of eyes.

Take Home or Classroom Activity: Did You Know—Fascinating Facts About Eyes Worksheet for Discussion and Sharing

Materials Needed:

- ★ One copy of *Did You Know* activity sheet per student.

Instructions:

1. Distribute *Did You Know* student activity sheet and have the students take home to discuss with family members.
2. Instruct students to add one more fact to the sheet to bring back and share with the class.
3. Instruct students to research one of the fun facts or research another animal or organism of their choice, to learn more about it.
4. Instruct students to students prepare an illustrated report demonstrating their research and invite them to present their reports to the class.

Lesson 2: Seeing Through Lenses

Seeing Through Lenses covers different vision conditions and how lenses improve vision, as well as the use of various types of lenses to observe the world around us.

Lesson Objectives:

- ★ Students will learn about refractive errors and how vision can be improved or corrected by wearing glasses or contact lenses.
- ★ Students will learn how manufactured lenses are used in other observational tools to help us learn about the world.

Discussion Points – PowerPoint

Slide 1 Everyone’s eyes are a little different, not just the color but the way they work and how well they see. Sometimes, not all the parts work together the way they should. Eye glasses can help those who need to see more clearly. Wearing glasses, if you need them, helps you excel in sports and read better.

Refractive Errors

Slide 2 In order to see well, light rays that pass through the cornea need to focus on the retina in the back of the eye. Some people have trouble seeing clearly because their eyes cannot focus light properly onto the retina.

Slide 3 Some people are **farsighted** and have problems seeing things that are close up. This is called **Hyperopia**. The image falls behind the retina because the eyeball is too short or the cornea is not curved enough. Objects that are near appear fuzzy to people with hyperopia, but they can clearly see things that are far away.

Slide 4 Some people are **nearsighted** and have problems seeing things that are far away. This is called **Myopia**. The images of distant objects are formed in front of the retina because the eyeball is too long or the cornea has too much curve. The result is that distant objects are blurred while near objects are seen clearly.

Slide 5 **Astigmatism** is an **uneven focus**. This results primarily from an irregular shape of the front surface of the cornea, the transparent “window” at the front of the eye. Normal corneas are smooth and equally curved so light entering the eye is evenly distributed to the retina. People who have astigmatism have corneas that are more curved in one direction than the other, causing wavy vision, much like the images you see in a rippling pond.

Class Discussion:

- ★ Ask students if they see better close-up (such as when reading a book) or far away (such as when looking at the blackboard).

Learning Assignment – Learning About Refractive Errors

Materials needed

- ★ *Refractive Errors* Worksheet
- ★ Pencils

Instructions

1. Distribute *Refractive Errors* worksheet.
2. Discuss terminology with students and have students match pictures to definition.

Lenses

Slide 6 The use of glasses can bend the light entering the eyes so the images fall properly on the retina. Glasses or contact lenses (which do the same thing as glasses) help people, young and old, see the world more clearly.

Slide 7 Some glasses have purposes other than correcting poor vision. Some glasses are made with special, extra-durable plastic that are impact-resistant, and protect the eyes from injuries, while other glasses have special coating on them to protect the eyes from Ultra Violet rays that can harm the eyes.

Class Discussion:

- ★ Why do some people need glasses and other don't? (Answers will vary)
- ★ What different kinds of glasses do people wear? (sunglasses, safety glasses, swimming goggles, etc.)

Magnifiers

Slide 8 We have found ways to increase our vision using tools such as magnifying glasses and microscopes that can help us learn more about the world around us. A manufactured lens is a curved piece of glass or plastic.

Slide 9 Magnifying glass – allows us to view small objects, like an insect, in more detail.

Slide 10 Microscope – allows us to observe very small things, such as tiny organisms, that we cannot see with our eyes.

Slide 11 Telescope – allows us to see things that are far away in outer space, such as stars and planets.

Classroom Activities: Create a Microscope

Materials Needed:

- ★ Two magnifying glasses,
- ★ Two sheets of paper with words printed on each

Instructions:

1. Show students how to create a simple microscope by using two magnifying glasses and a piece of paper with words printed on it.
2. Hold one magnifying glass a short distance from the paper and have students look at the printed words. The words look larger than without the magnifying glass.
3. Ask students to hold the other magnifying glass between the first magnifying glass and their eye.
4. Have them move the upper magnifying glass back and forth to focus in on the printed words. Students will observe that the words look even bigger than with just the lower magnifying glass.

Discussion Points

- ★ Ask students to share their observations using the microscope.
- ★ How did the vision field change with use of the microscope?
- ★ How does the use of corrective lenses relate to the view through a microscope?

Follow-up Activity

Encourage students to have their parents take them to the eye doctor if they have not gone in the past two years.

- ★ Send a letter home to parents saying that they are studying vision and encouraging the entire family to take part in the activities.

Conduct a used eye glasses drive-in collaboration with the local Lions Club.

Have an ophthalmologist, optometrist or optician as a guest.

- ★ Prepare questions as a class prior to the visit.

Lesson 3: A World Without Sight

A World Without Sight is an introduction to individuals with vision impairments that cannot be corrected through lenses, how individuals with visual impairments perform day to day tasks and how to interact with individuals who are blind or visually impaired.

Lesson Objectives

- ★ Students will be able to tell another student or adult what blindness or vision impairment means.
- ★ Students will be able to tell another student or adult about various devices that can assist people who have vision loss with their daily activities.
- ★ Students will be able to explain how a guide dog or cane assists someone with vision loss.
- ★ Students will illustrate appropriate behavior when interacting with a person who is blind or visually impaired.

Discussion Points – PowerPoint

Slide 1 There are people who have vision problems that can't be corrected with eye glasses or contact lenses. There are varying levels of visual impairment.

Slide 2 Some people are considered legally blind. This means that they have no sight, or they can only distinguish between light and dark, and things and people appear as shadows.

Some people have what's called "low vision". Each person's level of vision is different, but typically these people need to use various types of tools to assist them with daily activities and reading.

Class Discussion

- ★ Can you think of different tools that help blind and visually impaired people?
- ★ Name a variety of methods and resources that blind or visually impaired people might use to support them living independently.
- ★ Share your experience assisting a blind or visually impaired person or how you might assist them – if requested.

Slide 3 There are all sorts of tools to assist blind and visually impaired people – Braille is a language consisting of different patterns of raised dots. A person who can't see well can read the Braille with his or her fingers.

Slide 4 Canes and guide dogs – Canes are often used to assist blind people to get where they need to go in the most efficient way, with the least amount of inconvenience. Using a long white cane allows them to locate steps, curbs, streets, driveways, doorways, elevators, escalators, people, chairs, tables, desks, or any other objects or places. The cane is long enough to be about two steps ahead of a person as he or she walks, so they find things with the cane before bumping into them. There are canes of all sizes, including very small ones for children and long ones for tall people.

Some blind or visually Impaired people use a guide dog to get around. These dogs are especially trained to move around things, go through doorways, and stop at curbs and stairs. When the person hears that it is safe to cross the street, he or she tells the dog to go ahead. When he gets to the address of the intended location, the dog will find the door. When a person uses a guide dog, he is always in charge and must tell the dog what to do.

Slide 5 Low Vision Aids – There are many resources and aids available to assist a visually impaired person in accessing educational resources and other important daily support items. Following are a few of those items and their use.

Types of low vision aides

- ★ Mobile Reader Applications – Smartphone or tablet applications that convert a picture or print into the spoken word, all the while combining convenience and portability.
- ★ Newspapers – Over 300 local and national newspapers and magazines are available for blind and visually impaired readers through a national resource center.
- ★ Computers – Screen reading and screen enlargement software programs that enable visually impaired and blind people to read what is displayed on a computer screen.
- ★ Library Materials – Every state has free library reading materials for blind and visually impaired individuals provided through the National Library Service for the Blind and Physically Handicapped (NLS) of the Library of Congress.
- ★ Additional support items include talking watches and clocks, household items, talking calculators, talking thermometers and other medical devices, check-writing guides, Braille games and more.

Class discussion

- ★ Do you know anyone who is blind or visually impaired?
- ★ How do you think your life would change if you were blind? What are some activities you do now that you might not be able to do if you had low vision?
- ★ How should we treat people who are blind or have low vision?

Slide 6 Treatment of visually impaired people – Here are some ideas for how to treat visually impaired people.

- ★ Never distract a person’s guide dog or work animal from its job without the owner’s permission.
- ★ Always verbally identify yourself and others who may be with you.
- ★ Let the person know if you or anyone else is moving from one place to another or leaving the room, and let them know when the conversation is at an end.
- ★ If the person with a visual impairment does not extend his or her hand to shake hands, then verbally extend a welcome.
- ★ When offering seating to a person with a visual impairment, place the person’s hand on the back or arm of the seat. A verbal cue is helpful as well.
- ★ Don’t be embarrassed if you happen to use accepted common expressions such as “See you later”.
- ★ It is okay to offer someone assistance. If the offer is accepted, then listen to or ask for instructions.
- ★ Do not shout at a person who is blind or visually impaired – he or she can hear you.

Those who are visually impaired have many interests, including careers and participating in a full life of daily activities. They may need to receive training in various techniques in order to do so.

Learning Assignment – Student Experience with Braille

Materials Needed

- ★ One copy of the *Braille* activity sheet per student
- ★ Pencils

Instructions

- ★ Distribute worksheets to students and allow time for students to decode the messages with a partner using the Braille alphabet.
- ★ Have students write a message using the Braille alphabet.
- ★ Review and discuss the experience as a class.

Classroom Activity – Visual impairment exercise

Materials Needed

- ★ Bandanas for blindfolds
- ★ Colored pencils or markers
- ★ Paper
- ★ Pictures of animals, plants, or other things that may relate to your classroom

Instructions

1. Tell the students that the exercise they are about to do will be different from what it would be for a person with impaired sight and appropriate training, but it may give you an idea of what it might be like to do simple tasks such as drawing a picture.
2. Give each student pencils and piece of paper.
3. Place the students in pairs if possible.
4. Instruct the students to gently help one another blindfold themselves. You may need to assist.
5. Have the students draw a picture of themselves or recreate a picture of an animal, or any other picture you have in the classroom.
6. After students complete their pictures, partners may take off the blindfold and view how well they did with the assignment.
7. Discuss and share student reactions to the project.

Reading Assignment

Material Needed

- ★ Links to stories: These stories can be found on the National Federation of the Blind website, www.nfb.org

Instructions

1. Instruct the students to choose to read the story of one of the following people:
 - ★ Erik Weihenmayer, the blind man who successfully climbed Mt. Everest.
 - ★ Abraham Nemeth, the blind mathematician who created the Braille code for mathematics.
 - ★ Geerat Vermeij, a blind biologist.
2. Either have the students write a brief summary of the story they read as a homework assignment, or discuss the stories with the class as a classroom discussion.

Essay

Materials Needed

- ★ Paper and pencils or computers

Instructions

1. Instruct students to write a brief essay on what their lives would be like if they were visually impaired. Include challenges they may face, activities they would have difficulty doing, and what types of things they would do, or tools they would use to help them with their daily lives.
2. Grade essays based on proper use of spelling and grammar, inclusion of material covered in lesson plan, and creativity.

Take Home Activity

- ★ Encourage students to talk with family members about the “courtesy of blindness.”
- ★ Also have them sort coins and bills while blindfolded and using the information below:

How do blind or visually impaired people identify money?

Coins are different sizes. Quarters and dimes have ridges around them, while pennies and nickels are smooth. The most common way to tell paper money apart is to fold the bills in different ways. Each person will have his or her own way of folding them; there is no standard for everyone. When you get money back from someone else, ask which bill is which and then fold it.

Lesson 4: Timeline of Clear Vision

Timeline of Clear Vision is an introduction to the invention of glasses. A discussion of the relationship of other inventions and how they progressed may be of interest in supporting this lesson.

Lesson Objectives:

- ★ Students will learn how the science of invention has improved our visual capacities through advancements in correction.
- ★ Students will understand how magnifying glasses were useful in assisting inventors in coming up with a better method for assisting people to see.
- ★ Students will learn how to develop a timeline of invention or activity.

Discussion Points – PowerPoint

Slide 1 Eyeglasses, frames with lenses that are worn in front of the eyes, normally for vision correction, eye protection, or for protection from UV rays, is really a great invention that has radically changed human life. They help people do the simplest things in daily life. Just imagine a world without eyeglasses – would we walk around bumping into things and driving our cars up onto the sidewalk?

Slide 2 Little is known about the history of glasses. We know eyeglasses were invented during the period between 1265 and 1290.

Slide 3 The initial glasses were not the same as glasses are today. They were composed merely of lenses without arms to make glasses steady, and were perched on the nose. This structure posed great inconvenience to the user as the glasses tended to slip off the nose.

Slide 4 During the 1720's, the emergence of eyeglass frames solved the inconvenience. Frames have arms that are the primary means of support to hold the glasses in front of the eyes. With the frames, eyeglasses are more comfortable and fit securely.

Slide 5 The original material of frame that made up the first eyeglasses was metal or bone, while the original material of lenses that made up the first eyeglasses was quartz. At that time, the producers were not able to produce flawless lenses.

Slide 6 At the very beginning, eyeglasses could only function to correct nearsightedness and farsightedness by simple magnification. In the mid 1780's, bifocal eyeglasses were invented by Benjamin Franklin. History books state that Mr. Franklin was bothered by constantly having to choose eyeglasses for both near vision and far vision to complete different tasks. In order to eliminate this trouble, he invented a set of lenses that would work to correct both vision problems.

Slide 7 Since the inception of the first eyeglasses, efforts had been made both in comfort and function. Manufacturers are committed to bring the best eyewear for people. Today it is “trendy” to wear glasses.

Classroom Discussion

- ★ How did glasses assist people in the early days?
- ★ Describe some differences between glasses of today and those of the past.
- ★ How has the attitude of “wearing glasses” changed over time?

Learning Assignment – Seeing into the Past

Materials

- ★ One copy of *Seeing into the Past* worksheet per student
- ★ Pencils

Instructions

1. Distribute *Seeing into the Past* student worksheet and review historical events with the class. If possible, provide images of early glasses and contact lenses for students to observe.
2. Have students respond to questions on worksheet and meet in small groups to discuss.
3. Have groups reflect on the following discussion questions:
 - ★ Do you think the invention of the magnifying glass led to the invention of glasses? (Magnifying glasses are useful, but inconvenient to hold. Inventors possibly wanted to come up with a magnifying glass that could sit on the face, in front of the eyes.)
 - ★ How have glasses changed from the 13th century to today? (Answers will vary, but should include the development of arms, bifocals, and contact lenses.)
 - ★ What are some other inventions that were created to address a specific need? (Answers may include: telephone – invented to help communicate; airplane –invented to help people travel more efficiently; hearing aid – developed to assist people who have difficulty hearing.)
 - ★ What inventions would you create to solve a particular problem? (Answers will vary)

Classroom Activity – Create a Historical Timeline

(Activity may be completed in the classroom or as a take home assignment)

Materials Needed

- ★ Chalk board or computer
- ★ Computer or classroom textbooks
- ★ Paper
- ★ Pencils, magic markers or crayons
- ★ Construction paper or poster board

Instructions

1. Instruct students to use the computer or classroom text books create a historical timeline of an invention that interests them.
2. Demonstrate how to research and create a timeline using a chalkboard or computer.
3. Instruct students to make posters with construction paper or poster board.
4. Have students present timelines to class.

Lesson 5: Taking Care of Your Eyes

Taking Care of Your Eyes stresses the importance of making wise lifestyle and safety choices to protect the precious gift of sight for a lifetime.

Lesson Objectives

- ★ Students will learn how to protect their eyes from ultraviolet (UV) radiation and prevent eye injuries.
- ★ Students will be able to name or point to at least four hazards to their eyes.
- ★ Students will tell a peer or adult at least three safety rules for protecting eyes from injury.

Discussion Points – PowerPoint

Hazards in General

Slide 1 The world can be a dangerous place for young eyes. Accidents involving common household products cause 125,000 eye injuries each year. Every 13 minutes, an emergency room treats a sports-related eye injury. And, 43 percent of sports-related eye injuries are to children ages 14 and younger.

There are many things that can hurt our eyes. We need to take precautions to make sure our eyes remain healthy and safe.

Safety at Home, School and at Play

Slide 2 About 90 percent of all eye injuries are preventable. Let's take a closer look at some hazards at home, school and on the playground, and how we can protect our eyes.

Slide 3 Household hazards include: toys, cleaning products, furniture, flatware and table settings, cigarettes and lighters, hair care and makeup products, tools, utensils, etc.

Slide 4 Hazards in the classroom include: pens and pencils, paper and cardboard, desk supplies such as scissors, etc

Slide 5 Many injuries occur when playing with toys and while on the playground. Let's look at some activities that can be dangerous to our eyes:

Toy guns and weapons, slingshots and sling-propelled toys, playground equipment, bicycles, trampolines, scooters, skateboards

Slide 6 How many of you play sports? What sports do you play? Eye injuries also happen while playing sports. These are the sports where eye injuries are most common:

Basketball, water and pool activities, softball, football, bicycling, winter sports and soccer.

It's very important to wear appropriate eye protection when playing sports.

Slide 7 Can you think of anything else that can harm not only your eyes, but any other part of your body? Fireworks can be very dangerous. Sparklers, firecrackers and all fireworks that shoot into the air can cause serious burns and damage, particularly to your eyes. They can even cause a person to lose his or her sight. It is best to stay away from fireworks and go to watch a professional display.

Slide 8 Discuss with students the best precautions to take to prevent eye injuries, such as: wearing safety eyewear when playing sports; don't run with sharp objects; keep toys and all objects away from your eyes, and don't wave them in front of other peoples' eyes; don't handle or mix chemicals.

Classroom Discussion:

- ★ What are some things in this classroom, on the playground, and at home that could hurt your eyes?
- ★ What precautions can to take to keep your eyes safe?

UV Rays

Slide 9 Discuss the role that the sun plays in the functioning of life on Earth. The sun warms our planet and provides energy for plants, which in turn gives us the oxygen we need to breathe.

Slide 10 The sun emits both visible and invisible light. Invisible light is known as UV radiation. Although we cannot see them, UV rays hit the earth every day, including on cloudy days. This UV radiation can burn our skin and damage our retinas.

Slide 11 80 percent of a person's lifetime exposure to UV radiation occurs before they turn 18. And 79 percent of people know that the sun can cause skin cancer, but only 6 percent know it can harm the eye.

Slide 12 Overexposure to UV radiation can cause serious health problems including sunburn, skin disorders, cataract and eye damage. Corneal sunburn, called photokeratitis, is the result of high short-term exposure to UV-B rays. Long hours at the beach or skiing without proper eye protection can cause this problem. It can be very painful and may cause temporary vision loss and cataracts.

Slide 13 There are two types of UV rays: UV-A and UV-B. Over time, the effects of UV rays may help cause a number of eye problems.

UV-A can hurt your central vision. It can damage the macula, a part of the retina at the back of your eye.

UV-B The front part of your eye (the cornea and the lens) absorbs most UV-B rays, but these rays may cause even more damage to your eyes than UV-A rays.

Slide 14 Scientists have developed a UV index to help evaluate the varying levels of UV that reach the earth every day.

Slide 15 Protect your eyes from UV rays.

Classroom Discussion

- ★ Provide students with different examples, and discuss ways that they can protect themselves from UV radiation.
- ★ These may include: never looking directly at the sun; limiting exposure to the sun during the middle of the day when rays are the strongest; wearing a hat outdoors to cover your face and eyes; wearing sunscreen with a sun protection factor (SPF) of at least 15; and wearing sunglasses or photchromic lenses that block 100 percent of UV rays.

Slide 16 There are other things we can do to keep our eyes healthy. Remember, they are the only ones we have. Some school age children may get pink eye. Has that happened to you? Eyes become red, puffy, and itchy. Pink eye comes from germs that you may have on your hands. It is important to wash your hands often and try not to touch your eyes. Another good way to prevent pink eye is to not wear other people's glasses and don't share yours.

Slide 17 You should only wear glasses that your parents or doctor give you to help you see. Not wearing your glasses, if you need them, can make it difficult to see, cause headaches, cause you to rub your eyes or cause you to be sleepy.

Slide 18 Sometimes your eyes may get very dry because they are not receiving enough moisture. It is important to drink lots of water to help them stay moist.

Slide 19 If dirt or liquid gets in your eye, tell an adult right away. Do not rub your eye because it could scratch your cornea. An adult will wash it out with water. Likewise, if you get hit in the eye be sure to tell an adult right away. You may want to rub it, but try not to – you need to let an adult know as soon as you can.

Slide 20 Another good way to keep your eyes healthy is to eat nutritious foods. Fruits and vegetables are a great way to get the vitamins and minerals your eyes need to stay healthy. In poor countries malnutrition is a major cause of blindness. Vitamin A, found in vegetables, is vital for good vision, especially in children.

Slide 21 One of the most important ways to take good care of eyes is to visit an eye doctor. He or she will check your vision and let you know if your eyes are healthy. When you start school, you need to see your eye doctor on a regular basis. Even if you don't wear glasses, it is still very important to visit the eye doctor periodically since your eyes change as you grow. If you notice you are having trouble seeing things far away or if you have to hold your book very close in order to read it, you need to tell an adult. Maybe your vision is a little blurry or you are just not seeing things clearly. You do not need to be afraid, but it is important to tell your parents or your teacher.

Learning Assignment – Eye Hazards Activity Sheet

Materials Needed

- ★ One copy of *Eye Hazards* activity sheet per student.
- ★ Pencils

Instructions

1. Distribute *Eye Hazards* student activity sheet and allow time for students to complete the worksheet in the classroom, or for homework assignment.
2. Review answers with class.

Classroom Activity – Eye Safety Poster

Materials Needed

- ★ Paper or poster board
- ★ Crayons or markers

Instructions

1. Explain that many eye injuries occur during sports or recreational events.
2. Arrange students into small groups and ask each group to create a poster about eye safety during play.

Take Home Activity – Ask Students to Record the Daily UV Index

Materials Needed

- ★ Computers with internet
- ★ Note paper and pencils

Instructions

1. Have students use the Internet to read and record the daily UV index for one week.
2. Discuss how the UV levels change during the time period.

Follow-up Activity – Encourage Eye Exam

Optional Reading Activity

Materials Needed

- ★ *The Eyes and Their Care* by Brian Ward, F. Watts, 1990

Instructions

1. Have students take turn reading the book out loud.
2. Discuss the book.

NATIONAL SCIENCE EDUCATION STANDARDS

This curriculum has been developed around the premise of two proficiency standards. First, the Scientific standards of “inquiry” and “ways of knowing.” Second, the National Health Education Standards.

Scientific Inquiry means learning through the process of asking valid questions and gathering and analyzing information.

Scientific Ways of Knowing assumes the current body of scientific knowledge must be based on evidence, be predictive, logical, subject to modification, and limited to the natural world.

SCIENTIFIC INQUIRY	SCIENTIFIC WAYS OF KNOWING
A. Ask a testable question	A. Recognize that there are different ways to carry out scientific investigations. Realize that investigations can be repeated under the same conditions with similar results and may have different explanations
B. Design & conduct a simple investigation to explore a question	B. Recognize the importance of respect for all living things
C. Gather & communicate information from careful observations and simple investigation through a variety of methods	C. Recognize that diverse groups of people contribute to our understanding of the world.

The National Science Education Standards include seven facets in science education that were developed to improve student learning through the implementation of enlightening activities. The standards addressed in this curriculum are highlighted and noted in this information.

SCIENCE AS INQUIRY

Content Standard A (K-4)

- ★ Abilities necessary to do scientific inquiry
- ★ Understanding about scientific inquiry

Content Standard A (5-8)

- ★ Abilities necessary to do scientific inquiry
- ★ Understanding about scientific inquiry

PHYSICAL SCIENCE

Content Standard B (K-4)

- ★ Properties of objects and materials
- ★ Position and motion of objects
- ★ Light, heat, electricity, and magnetism

Content Standard B (5-8)

- ★ Properties and changes of properties in matter
- ★ Motions and forces
- ★ Transfer of energy

LIFE SCIENCE

Content Standard C (K-4)

- ★ The characteristics of organisms
- ★ Life cycles of organisms
- ★ Organisms and environments

Content Standard C (5-8)

- ★ Structure and function in living systems
- ★ Reproduction and heredity
- ★ Regulation and behavior
- ★ Populations and ecosystems
- ★ Diversity and adaptations of organisms

EARTH AND SPACE SCIENCE

Content Standard D (K-4)

- ★ Properties of earth materials
- ★ Objects in the sky
- ★ Changes in earth and sky

Content Standard D (5-8)

- ★ Structure of the earth system
- ★ Earth's history
- ★ Earth in the solar system

SCIENCE AND TECHNOLOGY

Content Standard E (K-4)

- ★ Abilities of technological design
- ★ Understanding about science and technology
- ★ Abilities to distinguish between natural objects and objects made by humans

Content Standard E (5-8)

- ★ Abilities of technological design
- ★ Understandings about science and technology

SCIENCE IN PERSONAL AND SOCIAL PERSPECTIVES

Content Standard F (K-4)

Some objects occur in nature; others have been designed and made by people to solve human problems and enhance the quality of life. Objects can be categorized into two groups, natural and designed.

Content Standard F (5-8)

- ★ Personal health
- ★ Populations, resources, and environments
- ★ Natural hazards
- ★ Risks and benefits
- ★ Science and technology in society

HISTORY AND NATURE OF SCIENCE

Content Standard G (K-4)

- ★ Science as a human endeavor

Content Standard G (5-8)

- ★ Science as a human endeavor
- ★ Natural of science
- ★ History of science

Source:

*National Research Council – National Science Education Standards
National Health Education Standards*

The National Health Education Standards include seven key factors in health education that were developed to improve student learning through curriculum development, instruction, and assessment of student performance. Specific performance indicators define each standard.

HEALTH EDUCATION STANDARD 1

Students will comprehend concepts related to health promotion and disease prevention.

Rationale

Basic to health education is a foundation of knowledge about the interrelationship of behavior and health, interactions within the human body, and the prevention of diseases and other health problems. Experiencing physical, mental, emotional and social changes as one grows and develops provides a self-contained “learning laboratory.” Comprehension of health-promotion strategies and disease prevention concepts enables students to become health-literate, self-directed learners which establishes a foundation for leading healthy and productive lives.

PERFORMANCE INDICATORS

As a result of health instruction in Grades K-4, students will:

- ★ Describe relationships between personal health behaviors and individual well being.
- ★ Identify indicators of mental, emotional, social and physical health during childhood.
- ★ Describe the basic structure and functions of the human body systems.
- ★ Describe how the family influences personal health.
- ★ Describe how physical, social and emotional environments influence personal health.
- ★ Identify common health problems of children.
- ★ Identify health problems that should be detected and treated early.
- ★ Explain how childhood injuries and illnesses can be prevented or treated.

As a result of health instruction in Grades 5-8, students will:

- ★ Explain the relationship between positive health behaviors and the prevention of injury, illness, disease and premature death.
- ★ Describe the interrelationship of mental, emotional, social and physical health during adolescence.

- ★ Explain how health is influenced by the interaction of body systems.
- ★ Describe how family and peers influence the health of adolescents.
- ★ Analyze how environment and personal health are interrelated.
- ★ Describe ways to reduce risks related to adolescent health problems.
- ★ Explain how appropriate health care can prevent premature death and disability.
- ★ Describe how lifestyle, pathogens, family history and other risk factors are related to the cause or prevention of disease and other health problems.

HEALTH EDUCATION STANDARD 2

Students will demonstrate the ability to access valid health information and health-promoting products and services.

Rationale

Accessing valid health information and health-promoting products and services is important in the prevention, early detection, and treatment of most health problems. Critical thinking involves the ability to identify valid health information and to analyze, select, and access health-promoting services and products. Applying skills of information analysis, organization, comparison, synthesis and evaluation to health issues provides a foundation for individuals to move toward becoming health literate and responsible, productive citizens.

PERFORMANCE INDICATORS

As a result of health instruction in Grades K-4, students will:

- ★ Identify characteristics of valid health information and health-promoting products and services.
- ★ Demonstrate the ability to locate resources from home, school and community that provide valid health information.
- ★ Explain how media influences the selection of health information, products and services.
- ★ Demonstrate the ability to locate school and community health helpers.

As a result of health instruction in Grades 5-8, students will:

- ★ Analyze the validity of health information, products, and services.
- ★ Demonstrate the ability to utilize resources from home, school, and community that provide valid health information.
- ★ Analyze how media influences the selection of health information and products.
- ★ Demonstrate the ability to locate health products and services.
- ★ Compare the costs and validity of health products.
- ★ Describe situations requiring professional health services.

HEALTH EDUCATION STANDARD 3

Students will demonstrate the ability to practice health-enhancing behaviors and reduce health risks.

Rationale

By reducing harmful and risk taking behaviors, research confirms that many diseases and injuries can be prevented. More importantly, recognizing and practicing health-enhancing behaviors can contribute to a positive quality of life. Strategies used to maintain and improve positive health behaviors will utilize knowledge and skills that help students become critical thinkers and problem solvers. By accepting responsibility for personal health, students will have a foundation for living a healthy, productive life.

PERFORMANCE INDICATORS

As a result of health instruction in Grades K-4, students will:

- ★ Identify responsible health behaviors.
- ★ Identify personal health needs.
- ★ Compare behaviors that are safe to those that are risky or harmful.
- ★ Demonstrate strategies to improve or maintain personal health.
- ★ Develop injury prevention and management strategies for personal health.
- ★ Demonstrate ways to avoid and reduce threatening situations.
- ★ Apply skills to manage stress.

As a result of health instruction in Grades 5-8, students will:

- ★ Explain the importance of assuming responsibility for personal health behaviors.
- ★ Analyze a personal health assessment to determine health strengths and risks.
- ★ Distinguish between safe and risky or harmful behaviors in relationships.
- ★ Demonstrate strategies to improve or maintain personal and family health.
- ★ Develop injury prevention and management strategies for personal and family health.
- ★ Demonstrate ways to avoid and reduce threatening situations.
- ★ Demonstrate strategies to manage stress.

HEALTH EDUCATION STANDARD 4

Students will analyze the influence of culture, media, technology and other factors on health.

Rationale

Health is influenced by a variety of factors that co-exist within society. These include the cultural context as well as media and technology. A critical thinker and problem solver is able to analyze, evaluate and interpret the influence of these factors on health. The health literate, responsible and productive citizen draws upon the contributions of culture, media, technology and other factors to strengthen individual, family and community health.

PERFORMANCE INDICATORS

As a result of health instruction in Grades K-4, students will:

- ★ Describe how culture influences personal health behaviors.
- ★ Explain how media influences thoughts, feelings, and health behaviors.
- ★ Describe ways technology can influence personal health.

- ★ Explain how information from school and family influences health.

As a result of health instruction in Grades 5-8, students will:

- ★ Describe the influence of cultural beliefs on health behaviors and the use of health services.
- ★ Analyze how messages from media and other sources influence health behaviors.
- ★ Analyze the influence of technology on personal and family health.
- ★ Analyze how information from peers influences health.

HEALTH EDUCATION STANDARD 5

Students will demonstrate the ability to use interpersonal communication skills to enhance health.

Rationale

Personal, family, and community health are enhanced through effective communication. A responsible individual will use verbal and non-verbal skills in developing and maintaining healthy personal relationships. Ability to organize and to convey information, beliefs, opinions, and feelings are skills which strengthen interactions and can reduce or avoid conflict. When communicating, individuals who are health literate demonstrate care, consideration, and respect of self and others.

PERFORMANCE INDICATORS

As a result of health instruction in Grades K-4, students will:

- ★ Distinguish between verbal and non-verbal communication.
- ★ Describe characteristics needed to be a responsible friend and family member.
- ★ Demonstrate healthy ways to express needs, wants, and feelings.
- ★ Demonstrate ways to communicate care, consideration, and respect of self and others.
- ★ Demonstrate attentive listening skills to build and maintain healthy relationships.
- ★ Demonstrate refusal skills to enhance health.
- ★ Differentiate between negative and positive behaviors used in conflict situations.
- ★ Demonstrate non-violent strategies to resolve conflicts.

As a result of health instruction in Grades 5-8, students will:

- ★ Demonstrate effective verbal and non-verbal communication skills to enhance health.
- ★ Describe how the behavior of family and peers affects interpersonal communication.
- ★ Demonstrate healthy ways to express needs, wants and feelings.
- ★ Demonstrate ways to communicate care, consideration, and respect of self and others.
- ★ Demonstrate communication skills to build and maintain healthy relationships.

- ★ **Demonstrate refusal and negotiation skills to enhance health.**
- ★ **Analyze the possible causes of conflict among youth in schools and communities.**
- ★ **Demonstrate strategies to manage conflict in healthy ways.**

HEALTH EDUCATION STANDARD 6

Students will demonstrate the ability to use goal-setting and decision-making skills to enhance health.

Rationale

Decision-making and goal setting are essential lifelong skills needed in order to implement and sustain health-enhancing behaviors. These skills make it possible for individuals to transfer health knowledge into healthy lifestyles. When applied to health issues, decision-making and goal-setting skills will enable individuals to collaborate with others to improve the quality of life in their families, schools and communities.

PERFORMANCE INDICATORS

As a result of health instruction in Grades K-4, students will:

- ★ **Demonstrate the ability to apply a decision-making process to health issues and problems.**
- ★ **Explain when to ask for assistance in making health-related decisions and setting health goals.**
- ★ **Predict outcomes of positive health decisions.**
- ★ **Set a personal health goal and track progress toward its achievement.**

As a result of health instruction in Grades 5-8, students will:

- ★ **Demonstrate the ability to apply a decision-making process to health issues and problems individually and collaboratively.**
- ★ **Analyze how health-related decisions are influenced by individuals, family, and community values.**
- ★ **Predict how decisions regarding health behaviors have consequences for self and others.**
- ★ **Apply strategies and skills needed to attain personal health goals.**
- ★ **Describe how personal health goals are influenced by changing information, abilities, priorities, and responsibilities.**
- ★ **Develop a plan that addresses personal strengths, needs, and health risks.**

HEALTH EDUCATION STANDARD 7

Students will demonstrate the ability to advocate for personal, family and community health.

Rationale

Quality of life is dependent on an environment that protects and promotes the health of individuals, families, and communities. Advocating and communicating for positive health in their communities characterize responsible citizens, who are health literate. A variety of health advocacy skills are critical to these activities.

PERFORMANCE INDICATORS

As a result of health instruction in Grades K-4, students will:

- ★ **Describe a variety of methods to convey accurate health information and ideas.**
- ★ **Express information and opinions about health issues.**
- ★ **Identify community agencies that advocate for healthy individuals, families, and communities.**
- ★ **Demonstrate the ability to influence and support others in making positive health choices.**

As a result of health instruction in Grades 5-8, students will:

- ★ **Analyze various communication methods to accurately express health information and ideas.**
- ★ **Express information and opinions about health issues.**
- ★ **Identify barriers to effective communication of information, ideas, feelings, and opinions about health issues.**
- ★ **Demonstrate the ability to influence and support others in making positive health choices.**
- ★ **Demonstrate the ability to work cooperatively when advocating for healthy individuals, families, and schools.**

Source:

Joint Committee on National Health Education Standards (1995).
National health education standards.

E-Learning Standards and SCORM® Compliance

The Advanced Distributed Learning Initiative (ADL) was launched in November 1997 to support the development of dynamic and cost-effective learning software and systems. ADL's primary accomplishment has been the development of the Sharable Content Object Reference Model (SCORM). The purpose of SCORM is to "foster the creation of reusable learning content as 'instructional objects' within a common technical framework for computer-based and Web-based learning." SCORM describes that technical framework by providing a harmonized set of guidelines, specifications and standards. You can find out more about ADL and SCORM at <http://www.adlnet.gov>.

All online lessons and learning activities included are available for download packaged as SCORM-compliant files in the Online Lesson and Activities Index.

The SCORM format packaged online lessons and activities, allow you to use Play It Safe With Your Eyes content in any course management system that supports SCORM. Additionally, the SCORM standards allow your content to work automatically with specific components of your course management system (for example the gradebook), and to track whether a student has completed a lesson.