Light Bounces Lessons

Websites

How We See – Light & Mirror Game – Science Activities for Kids
Children experiment with light & mirrors in this fun science game for kids. They can manipulate the angles of the mirrors to see which way they reflect the light.
(http://www.sciencekids.co.nz/gamesactivities/howwesee.html)

Optics for Kids (The Science and Engineering Behind It)
Children can learn some fun and interesting things about optics on this website.
(http://www.opticalres.com/kidoptx_f.html)

Exploring the Science of Light
This web site is devoted to everything optics! Children will find ultra cool activities combining Jell-O and laser pointers, definitions of terms like acousto-optics and retroreflection, profiles of optics celebs who are changing our world and an optics timeline stretching from prehistory to the present. Don't forget to check out the tutorials featuring some optical illusions!
(http://www.opticsforteens.org/)

Bob Miller's Light Walk- Making a Pinhole Camera
Provides detailed instructions for how to make a pinhole camera at home with readily accessible materials.
(http://www.exploratorium.edu/sln/light_walk/camera_todo.html)

Apollo 17- Whole Moon View
Provides downloadable pictures of the moon to use in the Further Science Exploration for the Light Bounces lesson when the children consider how sunlight reflects off the moon.
(http://www.exploratorium.edu/sln/light_walk/camera_todo.html)

NASA Optics: Light, Color, and Their Uses
This site provides an online packet of activities developed by NASA for children in grades K-12. Explores light and color in conjunction with science and mathematics. Many topics go into more depth than needed for 3rd grade, but still a good resource site for the teacher.
(http://www.nasa.gov/audience/foreducators/topnav/materials/listbytype/Optics.Guide.html)

Science Hobbyist- Misconceptions Page
This site is a compilation of misconceptions that children have about a variety of physical science concepts, including light.
(http://www.eskimo.com/~billb/miscon/opphys.html)

Light Tour- Discover Light's Mysteries
This site, developed by the Center for Science Education at the Space Sciences Lab, takes you on a tour to explore wavelengths of light, types of light, how astronomers use different wavelengths, and what they see. A good resource site for the teacher, but too technical for the children.
(http://cse.ssl.berkeley.edu/light/light_tour.html)

The Woman Astronomer
This site details the accomplishments of women astronomers in the past, including Caroline Herschel and Maria Mitchell, whose discoveries advanced the science of light.
(http://www.womanastronomer.com/women_astronomers.htm)

Pioneers in Optics
This site contains details information about scientists who advanced the study of light and optics. Be sure to click on the "student activities" link for a wealth of activities on light and optics, including those on lenses, mirrors, shadows, microscopes, eyeglasses, and animal vision.
(http://micro.magnet.fsu.edu/optics/timeline/people/swan.html)

Animal Vision
This site provides information on animal vision, with specific exploration into birds and bats. A good site for enrichment activities for children who are curious about how animals see compared to humans.
(http://micro.magnet.fsu.edu/optics/activities/teachers/animalvision.html)

How We See- The First Steps of Human Vision
This reference site provides the teacher with detailed information on how we see. Specific processes that occur with the eye and brain are detailed in a comprehensible way, and historical information on the understanding of vision is also integrated into the text.
(http://www.accessexcellence.org/AE/AEC/CC/vision_background.php)

Light Links
This site, sponsored by the Annenberg/CPB Channel, provides a collection of links related to light. An excellent resource site for teachers.
(http://www.learner.org/workshops/sheddinglight/lightlinks/)

Light: A Teaching Unit
Created by General Electric, this Unit deals with light from a scientific, mathematical, technological, and historical perspective. Hands-on activities and experiments are included. (http://www.gelighting.com/LightingWeb/na/consumer/)

Color Vision
Children can make a whole rainbow by mixing red, green, and blue light on this interactive website.
(http://phet.colorado.edu/en/simulation/color-vision)

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Books

Celebrations of Light : A Year of Holidays Around the World
By Nancy Luenn; illustrated by Mark Bender. (1998, Atheneum)
An excellent social studies resource, this book explores the ways in which cultures from around the world celebrate light, including Bon Matsuri in Japan, Luciadagen in Sweden, and Christmas in the United States.

Day Light, Night Light: Where Light Comes From
By Franklyn M. Branley; illustrated by Stacey Schuett. (1998, Collins)
This book, from the Let's-Read-and-Find-Out series, explores natural and man-made sources of light and how we see objects from reflected light.

Experiments with Light: A True Book
By Salvatore Tocci. (2002, Children's Press)
This source contains activities with good explanations on reflecting light, refracting light, how the eye works, and lenses.

Exploring Light
By Ed Catherall. (1991, Hodder Wayland)
This book, for more advanced readers, contains excellent information about light in conjunction with activities for children to apply their understanding. The book is very well presented and illustrated.

Eyewitness Light
By David Burnie. (1999, DK Publishing Inc.)
From the Eyewitness series, this serves as an excellent resource book for children to use in the Science Center. Although the text may not be age appropriate for some children, the detailed pictures will be engaging to all. Includes a table of contents, glossary, and index.

Light
By Terry Jennings; illustrated by Peter Smith & Catherine Ward.
(1998, Heinemann Library)
This resource book for independent readers explores light, mirrors, periscopes, lenses, and cameras. Includes activities for the children to try in school or at home. Includes a table of contents, glossary, and index.

Light (Science Activities)
By Graham Peacock. (1995, Hodder Wayland)
This resource book for independent readers explores how we see, mirrors, and color.

Light and Color (Straightforward Science Series)
By Peter D. Riley. (1999, Children's Press)
This resource book for independent readers delves into many fascinating aspects of light including how light travels, interacts with materials, and makes shadows, as well as how the eyes of humans and other animals work. Includes a table of contents, glossary, and index.

Light and Dark (Science Alive Series)
By Terry Jennings. (2009, Saunders Book Co.)
This book explores the difference between light and dark. Handson investigations, color photographs, and diagrams help children explore concepts including shadows, nocturnal animals, how plants use light, and reflection of light.

Light, Sound & Electricity: The Usborne Internet-Linked Library of Science
By Kirsteen Rogers, Phillip Clarke, Alastair Smith and Corinne Henderson; illustrated by Verinder Bhachu. (2001, Usborne Publishing, Ltd.)
Although only a third of the book focuses on light, this book is an excellent resource that contains clear explanations and graphics of light phenomena. Includes activities to try at home as well as suggested links to web sites about light. Also includes a table of contents, list of inventors, glossary, and index.

The Little Giant Book of Optical Illusions
By Keith Kay. (1997, Sterling Publishing Company, Inc.)
This book has children examine drawings that fool the eye into believing a flat surface is three-dimensional, that coils roll from left to right across the page, and that white spaces flash at you, plus more.

Sound and Light (Hands on Science)
By Jack Challoner; illustrated by David Le Jars. (2001, Kingfisher)
Half of this resource is focused on the topic of light. Contains three to five activities on each of nine topics about light. A good activity book for the unit.

Stellaluna
By Janell Cannon. (1997, Sandpiper)
In this engaging story, a young fruit bat falls into a bird's nest and is raised like a bird until reunited with her mother. A sweetly told story with one scientific misconception about how little Stellaluna sees. If children understand light and vision, they should be able to spot this inaccuracy.

The Story of Thomas Alva Edison, Inventor: The Wizard of Menlo Park
By Margaret Davidson. (1990, Scholastic Paperbacks)
This independent readers book chronicles the life of Thomas Edison, from his first job selling newspapers to his inventions of the phonograph and light bulb. With lots of text and some blackand- white pictures, the book provides an interesting account of his life, his impact on the field of science, and his lasting impact on today's society.

Thomas A. Edison: Young Inventor (Childhood of Famous Americans Series)
By Sue Guthridge; illustrated by Wallace Wook. (1986, Aladdin Library)
This independent readers book explores Thomas Edison's childhood and important things about his adult life including his invention of the light bulb and phonograph.