Ames Public Library **@HOME Activities**

Light and Reflection

Light is a form of energy. Light can be natural or artificial. Our main source of light during the day is the sun. In the night we use a variety of methods, from electric lightbulbs to battery operated devices and even fire, to enable us to see. See a related video on the Library's YouTube Channel at http://bit.ly/APLvideos.

Books and media:

Title	Author / Performer	Call Number:
Reflectiveness of Light	Best, Arthur	ETR 535 BES
Mirrors	Gaertner, Meg	ETR 535.32 GAE
Make It Glow	Claybourne, Anna	J 535 CLA
The Magic School Bus Gets a Bright Idea	(Scholastic Inc.)	J 535 COL
Exploring the Science of Light	(Exploratorium)	J 535 EXP
Light and Sound	Goldsmith, Mike (Dr.)	J 535 GOL
Physical Science - Light	Kittinger, Jo S.	J 535 KIT
First Science - Colorful Light	Rowe, Julian	J 535 ROW
Light It! Creations That Glow Shine, and Blink	Schneider, Christa	J 535 SCH
Finding the Speed of Light	Weston, Mark	J 535 WES
I See Myself	Cobb, Vicki	J 535.3 COB
Light & Color (DVD)	Nye, Bill	J 535 (DVD) NYE
Light Optics (DVD)	Nye, Bill	J 535 (DVD) NYE
The Way Things Work - Light	(Schlessinger Media)	J 535 (DVD) WAY

Websites:

URL	Notes
https://www.britannica.com/science/light/Reflection-and-refraction	
https://www.optics4kids.org/what-is-optics/reflection/the-reflection-of-light	
https://www.britannica.com/technology/kaleidoscope	*This article explores the origin and different kinds of kaleidoscope*

ames™ PUBLIC LIBRARY

Vocabulary

Reflection – Reflection of light is the bouncing back of light after it hits the surface of an object. Reflection of light is either mirror-like or diffuse, depending on the type of reflecting surface.

Refraction – Refraction is the change in direction of a light wave. Refraction is seen most often when a wave passes from one transparent medium to another transparent medium.

Natural light – Light that occurs in nature is called natural light. The sun is the main source of natural light.

Artificial light – This is light that is produced by electricity. Examples include light bulbs and electric lamps.

Laser – “LASER” stands for Light Amplification by Stimulated Emission of Radiation. Lasers are a type of artificial light that is used in a variety of ways, including cutting diamonds, performing surgery, and scanning bar codes.

Light year – Light waves travel in straight lines at an incredibly high speed. The speed of light through space is 186,282 miles per second. Light travels 5.88 trillion miles in a year. This distance is called a light-year.

Transparent – Able to let light through so that objects on the other side can be seen clearly.

Opaque – Not clear enough to allow light to pass through. Opaque materials block light.

Photon – A packet of light energy.

Energy – In physics, energy is the capacity for doing work. Energy may exist in potential, kinetic, thermal, electrical, chemical, nuclear, or various other forms. Energy can neither be created nor destroyed, but only changed from one form to another.

Take Away Kit: Kaleidoscope

Bag Contents:

- 1 Long Cardboard Tube
- 1 Short Cardboard Tube
- 1 Frosted Plastic Circle
- 1 Clear Plastic Circle
- 1 Cardboard Circle with Hole
- 1 Silver Acetate Sheet
- 25 – Assorted Color Tri-beads
- 1 – Guide sheet

You will also need:
Tape, pencil, ruler and decorating supplies if you want to decorate your kaleidoscope.

First, if you wish to decorate the long cardboard tube part of the kaleidoscope, you can do so with supplies you have at home.

Using the guide provided, follow the instructions on how to put your kaleidoscope together.

How does a kaleidoscope work?

Light travels in a straight line. As you point your kaleidoscope towards a light source, light enters in, and bounces between the silver acetate sheet panels inside. As the end of the kaleidoscope is filled with little shiny objects, the light bounces on these too. This makes interesting and colorful patterns. When you turn the kaleidoscope the beads move and the patterns change.