

Light Unit Organizer Third Grade

Core Knowledge Objectives: The students will be able to

- Identify the speed of light
- Define transparent, translucent, and opaque
- Classify objects as transparent, translucent, and opaque
- Identify plane, concave, and convex mirrors
- List items that use mirrors
- Explain how white light is made up of seven colors
- Look through concave and convex lenses and explain how they change the image being seen
- List items that use convex and concave lenses

Colorado State Standards

Reading and Writing

Standard 2: Students write and speak for a variety of purposes and audiences.

- write letters, expository paragraphs, and summaries
- organize their speaking and writing
- choosing vocabulary that communicates their messages clearly and precisely
- revising and editing writing
- creating readable documents with legible handwriting or word processing at the appropriate time.

Standard 3: Students write and speak using conventional grammar, usage, sentence structure, punctuation, capitalization, and spelling.

- know and use correct grammar in speaking and writing
- apply correct usage in speaking and writing
- use correct sentence structure in writing
- use correct punctuation, capitalization, and spelling

Science

Standard 1: Students apply the processes of scientific investigation and design, conduct, communicate about, and evaluate such investigations.

- design, plan and conduct a variety of simple investigations
- select and use appropriate tools to gather and display quantitative data related to the investigation
- make predictions

Standard 5: Students understand that the nature of science involves a particular way of building knowledge and making meaning of the natural world.

- models are used to represent events and objects

Habits of Mind

- Offer reasons for their findings and consider reasons suggested by others.
- Make sketches to aid in explaining procedures or ideas.

Thinking Framework

- Knowledge: Speed of light
- Knowledge: How light travels
- Patterning: Transparent, translucent, opaque
- Patterning: Reflection
- Mental Modeling: Spectrum of colors
- Mental Modeling: Uses of lenses

Activities / experiments

- Light travels in a straight line
 - Shine flashlight on an object – notice shadow
 - Shine a flashlight through a paper towel tube. Bend the tube and then shine the light. Discuss how the light doesn't bend by its self.
 - Illustrate and write about observations.
- Transparent and opaque objects experimentation
 - Classify objects
- Reflection
 - Reflect light using a flat mirror.
 - Experiment with concave and convex lenses
 - Discuss how concave mirrors are used in spot lights, flashlights, overhead projectors, headlights, etc.
 - Discuss how concave mirrors are used in department stores, on automobiles, in hospitals, etc.
 - Discuss how mirrors are used in telescopes and microscopes.
- The spectrum
 - Use a prism to split the light of an overhead projector
 - Make spectroscopes illustrate and write about findings.
 - Discuss where in nature we see the same result of light splitting (rainbow).
- Lenses can be used to magnify and bend light.
 - Using various lenses (concave & convex) to observe how the light bends.

Possible Assessments: Multiple choice questions
Short answer questions
Paragraph about light