

**Project FOCUS
Best Lessons
FOURTH GRADE**

Title of Lesson: Shadows

Theme: Physical Science

Unit Number: **Unit Title:** Sound and Light

Performance Standard(s) Covered (enter codes):

Enduring Standards (objectives of activity):

Habits of Mind

- Asks questions
- Uses numbers to quantify
- Works in a group
- Uses tools to measure and view
- Looks at how parts of things are needed
- Describes and compares using physical attributes
- Observes using senses
- Draws and describes observations

Content (key terms and topics covered):

- Identifies relationship between light and shadows, and predicts occurrence of shadows
- Makes shadows with objects and tells where shadows will occur
- Identifies objects based on their size and shape of their shadows
- Observes sources of light and variations in shadows
- Locates source of light causing shadows
- Identifies how shadows change as light source changes location in relationship to the object.

Learning Activity (Description in Steps)

Abstract (limit 100 characters): hands-on activity to illustrate the principles of light and its energy, namely shadows.

Details: We talked about how light is energy and shadows are formed when objects block the light. I emphasized that shadows are similar in shape to the objects, shadows change due to the light source changing.

Distribute shapes to the students. Let them play with the lighting and shadows for a little while. Then have them draw a shadow and its light source. You want them to recognize that an object makes a shadow by blocking light; the shape of the shadow depends on object and direction of light source (note how the same and how different); and that shadows can be matched to object that made them. A concept that should be highlighted is comparing. The definitions to stress and illustrate are light- form of energy visible to the human eye and shadow- shape formed when light is blocked or absorbed by an object. Demonstrate by using puppets and common every day objects with a flashlight to make shadows and let them make their own shadows and talk about when you

see your shadow and when you do not have a shadow, length of shadows, how to compare the lengths at differing angles, etc.

Materials Needed (Type and Quantity):

Flashlight

Various objects

Paper (white paper to cast shadows)

Crayons or colored pencils

Notes and Tips (suggested changes, alternative methods, cautions):

Make sure you are in an area with a single light source or else it may be difficult for the student's to form shadows.

Sources/References:

- 1)
- 2)
- 3)