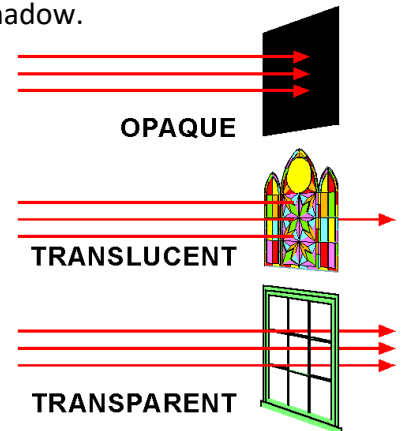




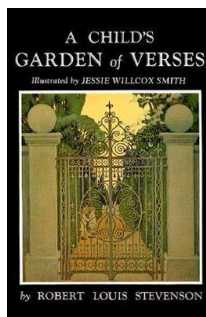
The SCIENCE of SHADOWS (6-8)

KEY CONCEPTS:

- A **shadow** is the dark figure cast upon a surface by a body intercepting the rays from a source of light. It is the relative absence of light.
- Because **light travels in straight lines** outwards from its source, the angle at which light strikes an object or surface determines the size and shape of the shadow.
- The **physical** and **chemical properties** of materials determine whether light is reflected, transmitted or absorbed. The less light that travels through a material, the more defined the shadow.
 - **Transparent** – allows light to pass through clearly (transmitted)
 - **Translucent** - permits light to pass through, but diffuses it so objects are not clearly visible (part transmitted, part absorbed)
 - **Opaque** – does not allow light to pass through (all absorbed)
 - **Reflective** - to cast light back from a surface (reflected)



LITERACY CONNECTION:



Shadows are commonly used in stories to convey something dark or scary.

[Robert Louis Stevenson](#) wrote famous novels like [Treasure Island](#) and [The Strange Case of Dr Jekyll and Mr. Hyde](#), but he was also an accomplished poet. His work [My Shadow](#) (from [A Child's Garden of Verses](#)) takes a whimsical point of view toward his shadow.

ACTIVITY: PROPERTIES of SHADOWS

Materials: paper, scissors, tape, pencil/stick, flashlight, glass, tin foil, tissue

1. Draw a simple shape (circle, triangle, heart) on the paper and cut it out.
2. Place shape near the top of a pencil, and attach it with tape.
3. Shine the flashlight on the paper shape. Is it transparent, translucent, opaque or reflective?
4. Investigate shadows with different materials like a drinking glass, a tissue, or tin foil. What objects are transparent, translucent or opaque?



EXPLORE: Shadows can greatly affect how we interpret things. In 1976, NASA took a photograph what appears to be a [Face on Mars](#) which spawned many wild theories. As technology improved, scientists confirmed in 2001 it was not a face, but really a trick of light and shadow on a plateau.

For step-by-step instructions, watch the video at: [Shadow STEM Activity](#)

This at-home educational activity is from the Literacy Coalition of Palm Beach County's literacy-based Stories & STEM program. Stories & STEM is made possible with support from Prime Time Palm Beach County, Inc., which receives significant funding from the Children's Services Council of Palm Beach County, Inc.

Having fun? Send pictures or video links of you and your Stories & STEM projects to csharkey@literacypbcc.org