**SETTING UP**

**YOUR OWN LIGHT AND SHADOW PLAYGROUND**

All you need is a light source, a surface, and materials to explore!

1. **LIGHT SOURCE**

It’s important to have lights that can be easily moved and adjusted to support explorations of shadow size and position. We always try to use point sources* as lights to create clean, crisp shadows. Here are some solutions we’ve tried out...

- **MAGLITE FLASHLIGHT**
- **PHONE FLASHLIGHT**
- **THE SUN!**

2. **SURFACE**

Think about the space. What projection surfaces will support different kinds of investigations? Hanging up a big sheet or using a blank wall supports large-scale dramatic play and working together. Smaller, individual stations can feel like personal and protected spaces for building.

3. **MATERIALS TO EXPLORE**

- **COLORFUL MATERIALS**
- **REFLECTIVE MATERIALS**
- **SHADOW CASTERS**
- **MATERIALS THAT BEND LIGHT**
- **BLOCKS**
- **WIRE SHAPES**
- **GRIDS**
- **FIGURINES**
- **CARDBOARD CUTOUTS**

*A point source is a light source that creates sharp shadows. Many LEDs and flashlights have lenses and diffusers that soften the shadows, or are made up of multiple LEDs instead of just one. Sometimes these can be removed to access the point source underneath.

**BLOCKING LIGHT**

A shadow is made by blocking light. If children are noticing how some objects block light, you might offer them the word **opaque** to describe these materials.

- Make observations about shadows (like when Marco noticed that the Tiger’s shadow didn’t have stripes).
- Move around the objects and light sources. Notice how shadows become bigger or smaller and change shape.
- Use their own hands and bodies to block light and make their shadows dance!

**WHAT CHILDREN MIGHT DO**

1. **LIGHT SOURCE**

- Make a search for other objects that can block light. What do children notice as they test out different materials? Is all of the light blocked?

2. **SURFACE**

- Ask children questions like:
  - How big do you want your shadow to be?
  - Where should we place the light?
  - Where should we place the object?

3. **MATERIALS TO EXPLORE**

- Go on a search for other objects that can block light. What do children notice as they test out different materials? Is all of the light blocked?

- Build on an interest in using hands to make shadows by hanging up a white sheet to make large-scale shadow performances!

- Follow the learner who starts telling stories by offering supplies to make cardboard cutouts and shadow puppets.

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Light bends through some materials. This isn’t the same as a reflection, when light bounces back. Instead, light moves through the object or material, but it changes direction.

**WHAT CHILDREN MIGHT DO**
- Notice how funny faces look when you see them through a lens or a fishbowl!
- Try to make a rainbow by shining a light at a prism from all different angles.
- Comment on how the shape of the light changes while moving a lens around.

**WHAT YOU MIGHT DO**
- Ask children questions like:
  - Where is your light going?
  - Where is the light brightest?
  - What colors do you notice?
- Go on a search for other objects that light can bend through. What do children notice as they test out different materials?
- Compare differently shaped bottles and cups. Some cups even have cut facets like crystals that might change how the light moves through them.