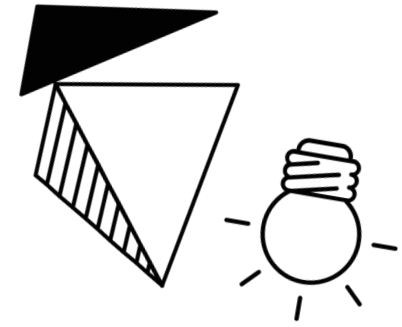


Cast fascinating, multidimensional shadows using items found around your home! Learn to manipulate light to change their shapes and sizes.



2

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Casting Shadows

1

Here are a few more challenges: ideas

Shadow puppets: Use your hands or cut out images to create characters. Cast their shadow to tell a story.

Shadow sculpture: Create 3D sculptures out of aluminium foil or modelling clay. Place them on a piece of paper and draw their shadows.



8

Shadow Basics

A shadow is an area of darkness that occurs when light is blocked by an object. Some materials are better at blocking light than others. Objects are either opaque, translucent, or transparent.

Opaque objects block the light completely; the shadows created have sharp lines.

Translucent objects let some light pass through them; the resulting shadows are fuzzy and blurred.

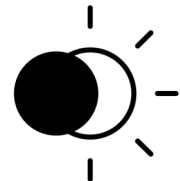
Transparent objects let all light pass through them; they won't create shadows but might diffuse/distort light.

3

Did you know?

Shadows have many impacts in science:

- In astronomy, they show astronomical events like eclipses
- In video game and movie design, they are recreated with special effects to add visual context, cues, and texture
- In microscopy and medicine, they display contrasts used to determine findings



7

Challenge 1: Explore Shadows

- Gather a variety of objects from your home:
 - A moveable light source: A flashlight or a table lamp
 - Opaque items: Toys, paper, or a cardboard cut-out
 - Translucent objects: Wax paper, a plastic bottle, or a cup
 - Transparent objects: A glass, clear or coloured plastic
 - Items with textures/holes: Mesh, lace, a slotted spoon, or a colander
 - Items that refract light: CDs, mirrors, aluminium foil, or sequined fabric

Caution!
Some light sources can become hot if they are left on too long.

4

- Challenge 2: Shadow Scenery**
- Display your scene on a wall or in a cardboard frame, lined with a sheet of paper.
 - Arrange the items you gathered in various configurations.
 - Shine one or many lights through your composition.
 - Look at the shadow composition displayed.
 - Move the light sources around.
 - Try using a coloured light source, or place coloured pieces of translucent material (such as painted wax paper) over your light source.
 - Add items that move.
 - Add or remove items until you are happy with your scene.

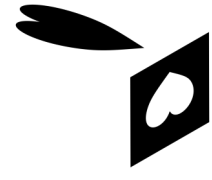
6

Place each item, one at a time, in front of a light. Observe the kind of shadow it creates.

Move it closer to — or further away from — the light source. How does it behave?

What happens when you move the light source to the side of the object?

What happens when you fill a container with water, or coloured liquid?



5

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