

Episode 9: Shadows

Ever wondered why objects cast shadows? Luke is bringing to light some interesting findings through shadow play, as he experiments with simple objects and a torch to better understand the science behind shadows.



Scientific concepts: 1. A shadow is the dark shape made when an object blocks light.
2. Shadows can change size.

Science process skills: Observing, comparing and communicating.

Let's investigate: *Why do shadows change?*

Materials

- Torch
- Plain backdrop (white canvas, sheet or wall)
- Solid objects (leaf, toy animal, wooden spoon)
- Bubble mixture
- Sticky tac



Experiment procedure

1. Hold a leaf in front of white canvas, shine a torch and explore the shadow shapes created.
2. Secure a toy dinosaur to a wooden spoon with tac and hold it close to the canvas. Shine the torch and observe the shadow created.
3. Move the dinosaur further away from the canvas and closer to the torch. Watch as the shadow grows bigger! The size of a shadow depends on the distance between the object, the light source and the backdrop.
4. Keep the dinosaur close to the canvas while moving the torch further away and then back closer again. The size of the dinosaur's shadow will change, depending on which direction the light is coming from.
5. Blow bubbles in front of the canvas while shining the torch. Observe how the shadow is lighter compared to the solid objects because most of the torch light travels through the bubbles. Solid objects create a dark shadow because the light can't pass through them.

Early Education links

Episode themes relate to [EYLF Learning Outcomes](#) 4.2, 5.1 and 5.2. Encourage children to investigate how shadows are made by using their hands to create different shadow shapes and movements. Support mathematical understandings by experimenting with moving different solid objects closer and further away from the light source, to create changes in the size of the shadows created.

Follow-up learning

- [Play School: Art Time 2 Inspiration Pack](#) suggests ways for educators to extend children's scientific understandings about shadows through 3D box creations, puppets and a Japanese artist technique.
- Create *shadow drawings* by tracing around children's projected body shapes on large, blank paper taped to a wall. Explore mathematical directional terms (up, down, left, right) as children draw their own shadow.

