



CAPTAIN CURIOUSITY'S GUIDE TO THE UNIVERSE

Topic: Shadows

EVER WONDER WHAT A SHADOW IS? A shadow is an area of darkness that occurs when an object blocks light. When light shines on one side of an object, such as an animal, a shadow appears on the other side in the shape of that object. You can see lots of shadows on a sunny day or you can make your own shadows using a lamp or flashlight!

EVER WONDER WHY SOME THINGS MAKE DARKER SHADOWS THAN OTHERS? Some objects, like the glass in a window, let a lot of light pass through. These objects are called “transparent,” and they create little or no shadows. But other objects, such as animals and cars, block almost all light; these objects are called “opaque” and they create dark shadows.



EVER WONDER WHY YOUR SHADOW DISAPPEARS AT NIGHT, ON CLOUDY DAYS, OR WHEN THE LIGHT GOES OUT?

A shadow is made when light shines on an object. When the sun is behind the clouds or goes down at the end of the day, or your light goes out, the shadow disappears because there is no light shining down.

EVER WONDER WHY SHADOWS CHANGE SIZE? The size of the shadow can change depending on how close or far away the light is or the direction in which the light is shining.

EVER WONDER HOW A SUNDIAL USES SHADOWS TO TELL TIME? Sundials were invented a long, long time ago and are considered to be the very first scientific instrument! People realized that they could tell time during the day depending on where the sun was shining in the sky. In the morning, the sun rises in the east. At noon, or the middle of the day, the sun is directly above. At the end of the day, the sun sets in the west. Sundials have a point, called a gnomon, which sticks up and makes shadows when the sun shines on it. The size and position of the shadow made by the gnomon on a sundial tells people where the sun is in the sky, and therefore what time of day it is.



You Can Do It!



In a darkened room, stand between a bright lamp bulb and the wall. Can you see your shadow? Does your shadow move with you? Use your hands to make funny shapes on the wall. Or, if you have a flashlight, you can cut out shapes, glue them to popsicle sticks and make your own shadow puppet show on the wall. Also, on the next sunny day, walk outside and observe your shadow at different times of the day. Have a grownup trace around your shadow on the sidewalk with chalk.