

# What color is a mirror? Explaining mirrors and how they work.

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Credit: Unsplash/CC0 Public Domain

With morning and nighttime routines alone, people spend plenty of time looking in the mirror, but did you know the history of this everyday item dates to 4000 B.C.?

According to Brown University's Joukowsky Institute for Archaeology and the Ancient World, the earliest mirrors were made of polished obsidian, a type of natural glass formed by volcanoes. Artificial glass mirrors didn't come until the third century AD, and even when they did, they were very small.

The Joukowsky Institute says one explanation for the mirror's popularity as a large decoration goes back to the reign of Louis XIV, who decreed in 1689 that silver, a popular decorative material, would be confiscated to fund military campaigns. As a result, the upper class turned to shiny, reflective glass to decorate their homes.

## What color is a mirror?

According to BBC Science Focus Magazine, most mirrors are technically white with a slight green tinge.

Color is a result of reflected [light](#). To produce [color](#), objects absorb some [wavelengths of light](#) while reflecting others. An object that appears red, for example, is simply reflecting [red light](#). Objects that are black reflect no light. Because a mirror is designed to reflect all wavelengths on the [visible spectrum](#), a perfect mirror would be white—the reflection of all colors.

But mirrors aren't perfect. Most mirrors reflect [green light](#) stronger than other colors because they have an underlying layer of silica glass, the atoms of which reflect green wavelengths more than other colors, according to ZME Science

## How do mirrors work?

When light hits an object, it is either absorbed, reflected or transmitted

through the object, says Microscopy Today. According to Live Science, reflected light often scatters in countless directions based on the shape of the object, affected by even microscopic textural features.

For this reason, mirrors are very smooth, according to Live Science. This means that they can reflect light without scattering it. By sending light particles back in nearly the same arrangement, a mirror reflects the light back at the observer in a way that lets them see their reflection clearly.

## **Why do mirrors flip everything horizontally?**

It turns out they don't. There is a change happening, but it's not a horizontal one.

As educational YouTube creator Dianna Cowern, also known as Physics Girl, explains, an image is actually reversed along the z-axis, which can be difficult to understand.

When you hold something with printed text up to a mirror, it may appear to be flipped, but think about it this way: If you could see through the paper, you wouldn't be able to read it from the back either. It would be backwards. This means you're the one who flipped it horizontally, as if for someone standing across from you to read it—but mirrors don't actually reflect things back exactly as another person would see them. You would need a photograph to see that perspective.

To present it another way, someone standing in front of you would have their left [hand](#) across from your right and their [right hand](#) across from your left. In this scenario, they are actually horizontally flipped because their body is not in the same orientation as yours. In the mirror, your left hand still corresponds to your left hand, and your right hand corresponds to your right. Cowern says we're just not used to this because we're accustomed to standing across from people who are rotated to face us.

So, next time you look in a [mirror](#), remember you're not actually seeing yourself the way others do. You're seeing yourself flipped along the z-axis.

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