

# POLARIZATION



**Why do colors suddenly appear where there were none before?**

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## What to do

- Place different materials on the light panel—plastic sheets, plastic pieces, or tape.
- Use the handheld filters and look through them.
- Rotate the filters or combine several.
- Hold the LCD clock up to the light—what can you see?



## IF YOU WANT TO KNOW MORE

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### What Do You Notice?

Suddenly, colorful patterns, lines, and patches of color appear that you couldn't see before. The colors change as you rotate the filters. Some materials produce especially strong effects, while others show very little.

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### The Science Behind It

The light on the table is polarized, which means it oscillates in only one direction. A polarizing filter lets through only light oscillating in that direction. With several filters, you can deliberately change this direction or block the light completely. When light passes through materials such as plastic or film, its direction of oscillation changes. This is especially interesting in materials under stress, where the light is rotated by different amounts. These differences appear as colorful patterns. Adhesive tape also changes the light: the glue causes the polarization to rotate differently, creating colored structures. The LCD clock also works with polarized light. Without the right filter, it remains invisible; the polarizing filter makes the display visible. The table shows that light has not only brightness and color, but also a direction.