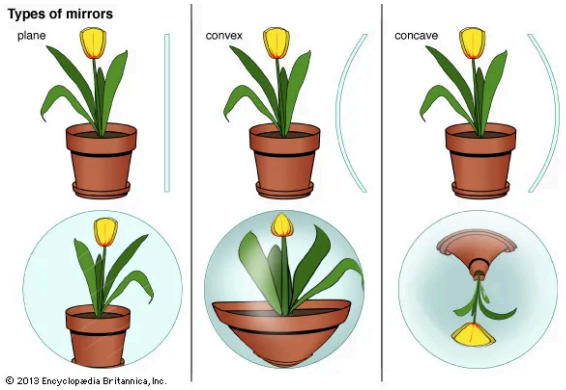
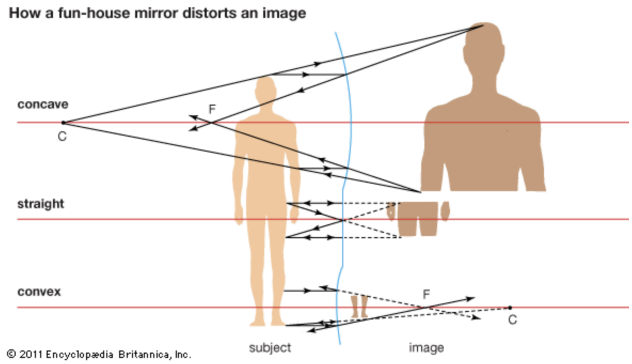
Reflection

When light hits any object, some light will be absorbed, some will pass through, and some will bounce/reflect off the surface. **A mirror reflects most of the light that hits it**. On a **flat or plane mirror**, like the mirror in your bathroom, the light bounces off the mirror and returns your reflection perfectly. **Convex mirrors** curve away from you, and the image you will see is smaller than reality. Convex mirrors can see wide angles, like a car's rearview mirror. **Concave mirrors** curve towards you, and the image will seem larger than reality if you are close to the mirror, like the flower in the drawings below [1]. However, if you back up, you will reach the **focal point** of the mirror, and the image will flip upside down and shrink! **Funhouse mirrors** that warp your reflection combine all three mirror types, like in the image on the right [2].





For two-way mirrors, some light passes through the mirror and the rest is reflected, meaning you can see both a reflection and what is behind the object. If you place a mirror with lights on it on a table face up, then place a two way-mirror facing down on top of it, you can create an **illusion of a bottomless pit** [3]. Two normal mirrors facing each other would bounce light back and forth forever, but the two-way mirror allows some light to escape the box and reach your eye. Because some light escapes after each reflection, there is less left over to produce the deeper image bulbs, making them look dimmer and farther away.

Some woven materials, like **scrims**, let light partially reflect and partially pass through. If lit from the front, scrims look **opaque**, so you only see the fabric front. Scrims lit from behind look **translucent** (you can see behind it) because some light escapes to your eye [4]. Glass can also cause only some light to be reflected, which lets you see your reflection in windows. Illusions like **Pepper's Ghost** light up glass so both someone reflected as well as whatever is behind the glass can be seen at the same time, making the person seem ghostly and see-through [5].

[1] "Mirror." Britannica Kids, 24 Oct. 2025, kids.britannica.com/kids/article/mirror/400132.
[2] "Mirror." Brttannica Kids, 24 Oct. 2025, https://kids.britannica.com/students/article/mirror/275865
[3] "Infinity Mirror." UMemphis, 2023, memphis.edu/physics/demonstrations/infinity_mirror.php
[4] Shanks, A. (1957). The art of the gauze. *Tabs, 15*(1), 4-9.
[5] Christopher, B. (2016). "Explaining the Pepper's ghost illusion with ray optics". COMSOL Blog. https://www.comsol.com/blogs/explaining-the-peppers-ghost-illusion-with-ray-optics.