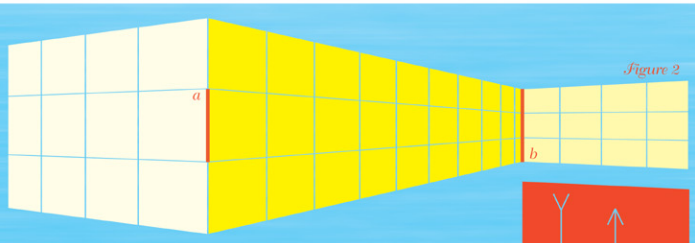
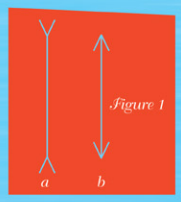




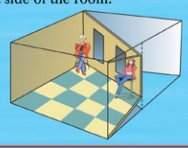
Which line is longer: a or b?

The two lines are actually the same length. Different explanations exist for why the Müller-Lyer illusion occurs. Some believe that the arrows in Figure 1 act as visual cues that lead us to mistakenly estimate sizes. Figure 2 plays with our expectation of size constancy: we believe that the more "distant" of the two lines must be longer.

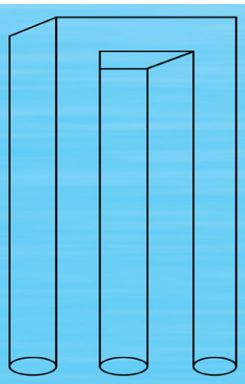
Müller-Lyer Illusion

The two people in this room are actually the same size–how is this possible?

The Ames room illusion involves both perspective and distance. When viewed from a specific angle, the room seems normal and rectangular. However, the room is actually shaped like a trapezoid, with the left corner twice as far away as the right corner; the left corner is lower as well. Therefore, a person standing on the right side of the room will appear much larger than a person standing on the left side of the room.



Ames Room Illusion



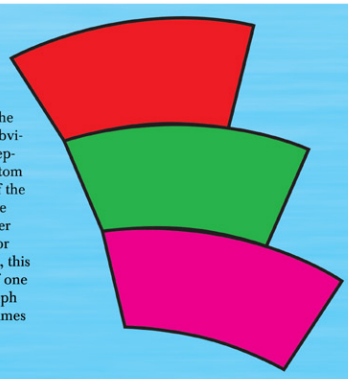
How many prongs does this object have?

This "impossible figure" seems to have either two or three prongs–cover half of it and it will appear one way, cover the other half and it will appear the other way. This occurs because the figure uses ambiguity and contradictory visual information. The source of the confusion is the middle prong–are the lines connected to it part of its sides, or are they the bottom inside edges of the two outside prongs? The ways in which this image plays with depth perspective allows it to create an object that lies somewhere between 2-D and 3-D–and could not exist in the real world.

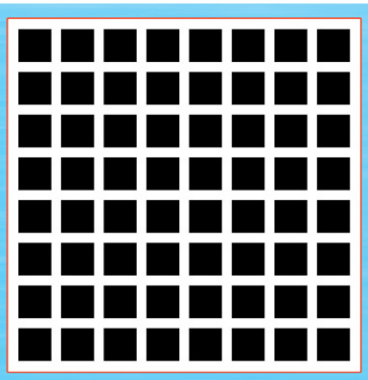
Impossible Prongs

Which of these figures is the largest?

This is a trick question–the figures in the image are actually all the same size. Obviously, this illusion plays with our perception of size constancy. Because the bottom of each figure is shorter than the top of the figure directly below it, we perceive the lower figures in the diagram to be larger than the upper ones. Though named for psychological pioneer Wilhelm Wundt, this image is actually a modified version of one created by American psychologist Joseph Jastrow in the late 1800s, and is sometimes called the Wundt-Jastrow illusion.



Wundt Area Illusion



Look at the intersections of these squares. What do you see?

As you view the image, you should see hazy gray dots at each of the intersections. However, if you try to focus on any one dot, it will disappear. Differing explanations exist for why this illusion occurs. One cites a process known as "lateral inhibition" and asserts that the contrast of light and dark at the intersections causes interference between receptors in the eye's retina, thus producing the gray spots. An opposing explanation claims the illusion takes place not because of events in the eye but because of how certain cells in the brain's cortex respond to visual input.

Hermann Grid

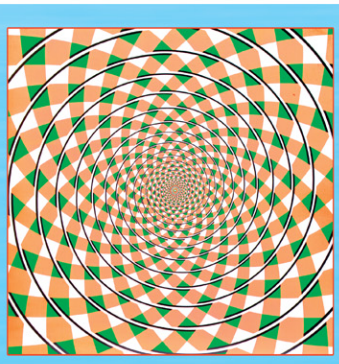
Where is the top of this staircase located?

The staircase actually has no top or bottom–it loops back around upon itself without getting any higher or lower. First created by scientist Lionel Penrose in the 1950s, this "impossible figure" illusion (also known as a "Penrose stairway") also has been famously brought to life by the Dutch artist M.C. Escher. The illusion occurs because our brains interpret each individual part of the staircase as an acceptable representation of a normal 3-D object, but incorrectly connect each of these parts to perceive a whole staircase that could not possibly exist in three-dimensional space.

Neverending Staircase

Is this really a spiral?

Though this may look like a spiral at first glance, it's actually a series of concentric circles. Created by British psychologist James Fraser in the early 1900s, this is a type of "twisted cord" illusion. Instead of solid lines, the circles in this illusion have been constructed from several black arcs separated by white spaces. The broken lines and alternating spaces of light and dark fool the eye into perceiving a "twist" that leads inward. Want to break the illusion? Cover half of the image and you'll see concentric circles instead of a spiral.



Fraser Spiral

What do you see in this picture–a vase or the profiles of two faces?

This illusion shows not only how perception can be selective at times, but that it must be selective–in other words, you can see either the vase or the faces, but you can't see both at the same time. Made famous by noted Danish psychologist Edgar Rubin, this illusion demonstrates the Gestalt principle of "figure-ground," which states that in visual perception we organize the things we see either as objects or as backgrounds/surroundings. In this image, seeing either the faces or the vase depends upon what you perceive as "figures" and what you perceive as "ground."

Faces/Vase