

# Defy Gravity

## More Details

With this experiment, you can make yourself thinner or thicker as you like. You can grow three hands or two heads if you want or even learn to fly!

### Broken symmetry

This experiment uses the fact that our body is mirror-symmetrical. If one half of the body generated by a perfect cut through the middle of the body is mirrored, the result is a whole body – but not exactly! If you looked closely, you would immediately recognise the illusion, because the symmetry is not quite right: We (almost) all have two eyes, two ears and two feet – but nobody's two sides are exactly the same. People who have very different feet, for example, can tell you a thing or two about it – they need a different shoe size for each foot.

### Additional experiment

Position yourself at the end of the exhibit, where the two mirrors are perpendicular to each other. You can also try this out at home by opening two of the doors on a bathroom mirror cabinet so that the mirror surfaces are at right angles to each other.

Look at your reflection in the mirror. Do you notice anything about it? Now touch your right eye with your left index finger. Or stroke your hair behind your left ear. Do you notice anything?

Most people find it difficult to find their way around a double mirror, because its image is not laterally reversed. The image is mirrored twice

and is therefore the right way round. And because we are used to looking at laterally-reversed mirror images, our brain has trouble finding its way around in a mirror-inverted mirror image.

### **Magic tricks only work in the brains of the audience!**

Our brain would be completely overwhelmed in our complex world if it could not link sensory impressions with known patterns. Throughout its entire life, it learns which situations are common and automatically arranges everything into its learned categories – usually without taking another close “look”: Optical illusions, magicians and our exhibit make use of this.