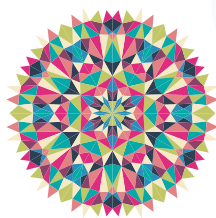


THE KALEIDOSCOPE

A Scientific Explanation



What is actually happening here?

A mirror produces a reflection.

What determines the number of images reflected in a kaleidoscope? Is the triangular shape important? How many images appear in a triangle?

The number of images you can see inside the kaleidoscope is determined both by the number of the mirrors attached to the kaleidoscope and by the angles between the mirrors. The smaller the angle, the larger the number of reflections. We connected three mirrors to a triangular prism, all of them facing each other inside the triangle. The angle between the mirrors is 60 degrees.

To find out the number of reflected images, use the following formula:

The number of images \times the angle between the mirrors (in degrees) = 360 degrees.

The angle between the mirrors in a triangular prism is 60 degrees, so the number of reflected images is six.

Each light beam striking the mirror at a certain angle is reflected at that same angle. In our case, the mirrors face each other, so every light beam that hits one mirror is immediately reflected to a second mirror, and so on. This is the reason why the kaleidoscope shows us an infinite number of reflections.



Davidson
Institute
The Educational
Arm of the
Weizmann Institute

WEIZMANN INSTITUTE OF SCIENCE

$\pi = 3,14$