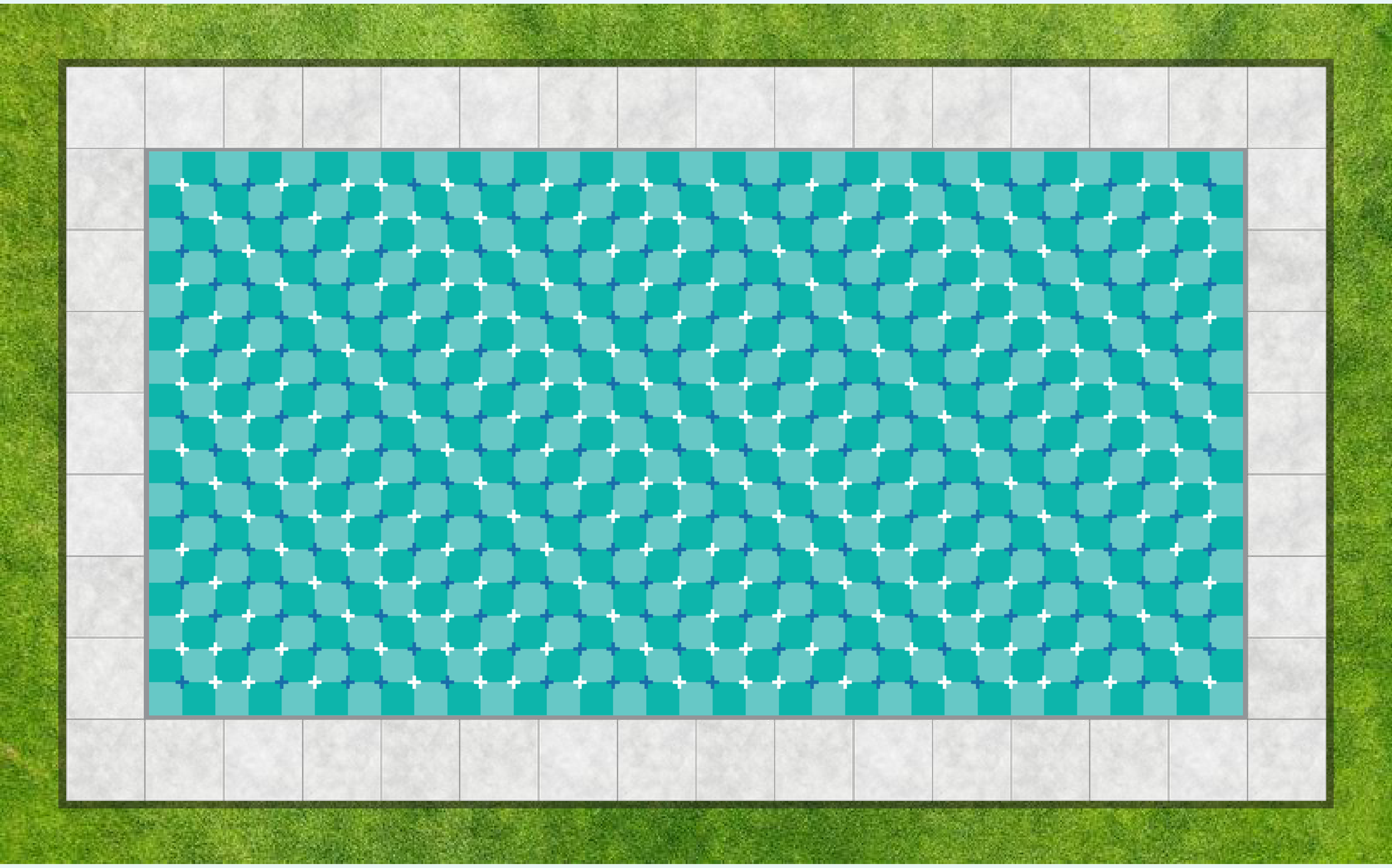
Is this a wave pool?



Or just your mind playing tricks?

This is a peripheral drift illusion inspired by Akiyoshi Kitaoka’s Primrose Field.

The optical illusion consists of checkered background with alternating teal and light blue squares. There are ‘+’ symbols in white and dark blue at the corners of each square. The entire image is created only with perpendicular straight lines.

What makes it look wavey?

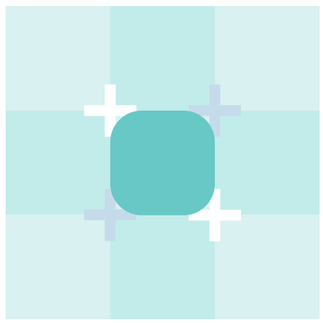
Contrast levels in the colors and Stepwise luminance profiles

The ‘+’ symbols are arranged in a diagonal sequence with variations in them. Sometimes there are 2 rows of ‘+’ symbols and sometimes there is 1 row. The sequence of white, dark blue, dark blue, white, dark blue, white, white, dark blue‘+’ symbols is repeated.

The contrast between white and dark blue ‘+’ symbols is higher than that of teal and light blue squares. Higher contrast is processed by the brain in lesser time when compared lower contrast.

These differences in direction, contrast and timing are picked up by the motion detectors in our peripheral vision. The dynamic changes in the neuron confuse the motion detectors in the visual cortex due to which we believe that the image is moving. The elements appear to move as coherent entities because of their similar orientation. This results in the diagonal ‘waves’ in our peripheral vision.

Curved edges



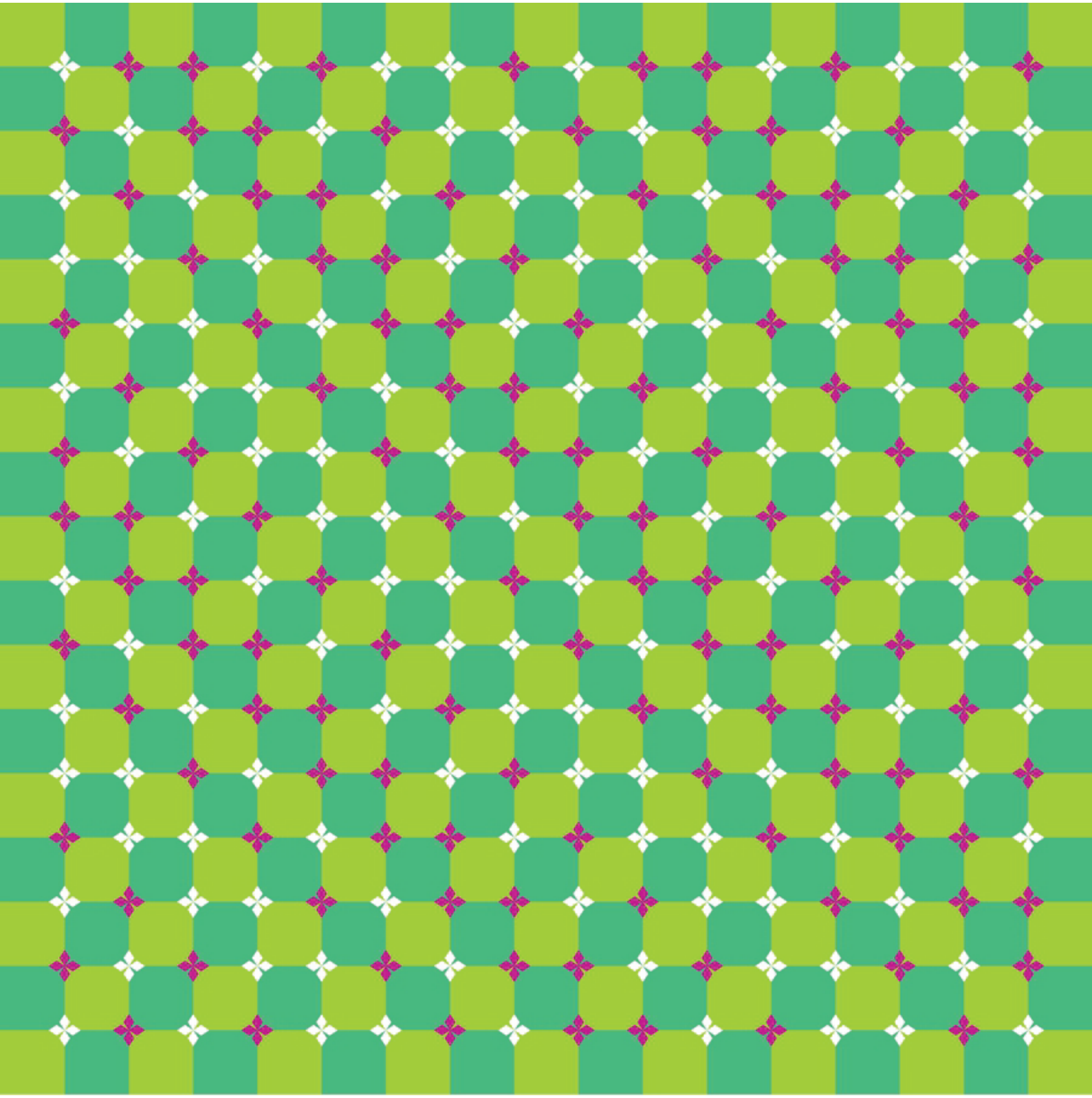
The ‘+’ symbols at the corners of each square make them look rounded which enhances the peripheral drift illusion.

If you can’t see the waves, slowly move closer to the image and away from it, or slowly scroll the image vertically.

Reference:
https://blogs.brown.edu/sarahabdellahneuroscience/2016/08/24/primroses-field-optical-illusion/

Primrose Field

An optical illusion by Akiyoshi Kitaoka



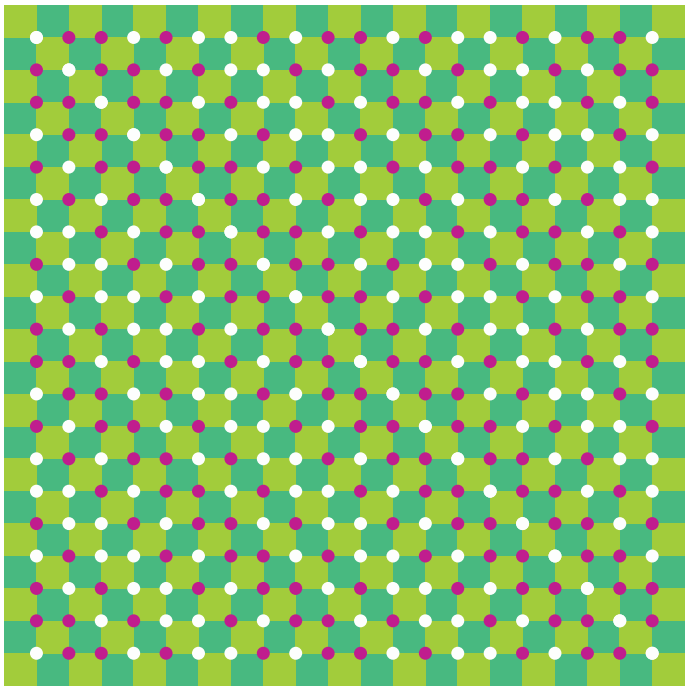
Observations:

The optical illusion consists of checkered green background with white and magenta primroses at the corners of each square. The entire image is created only with perpendicular straight lines.

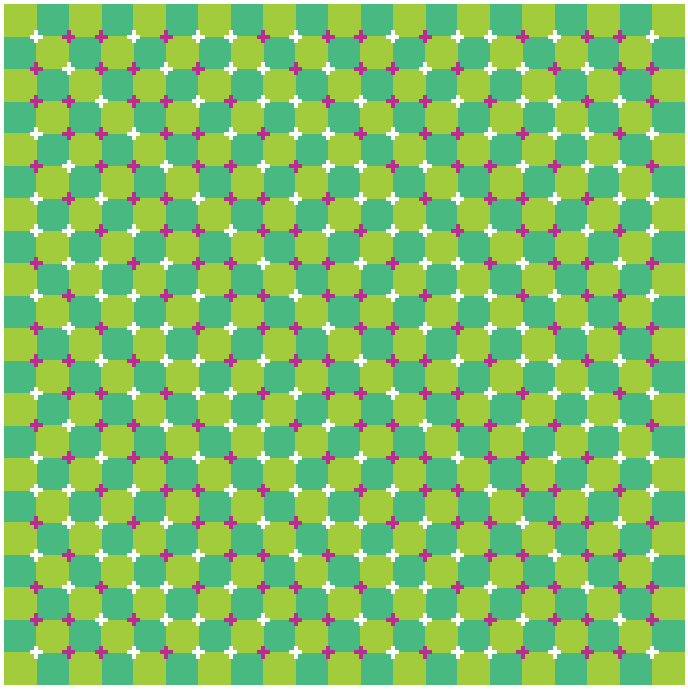
The waves are formed at the peripheral vision i.e., the surroundings of the area we are fixated on appears to move.

The wave effect can also be observed by slowly moving towards the image and away from it, or slowly scrolling the image vertically.

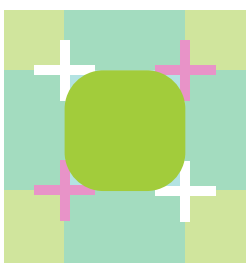
Explorations:



Changing the primroses to circles reduced the ‘wave’ effect.



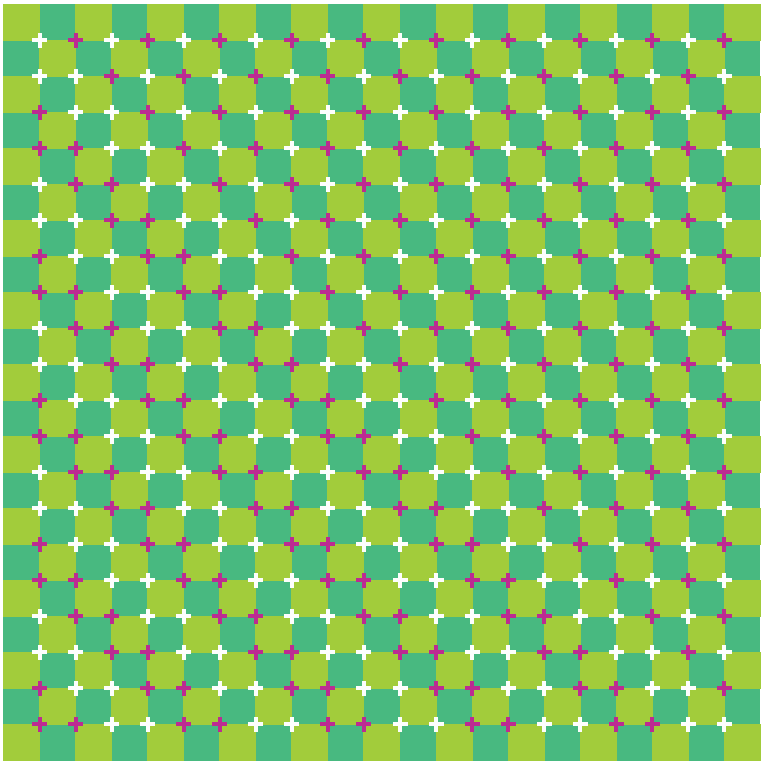
With the ‘+’ signs, the wave effect was enhanced.

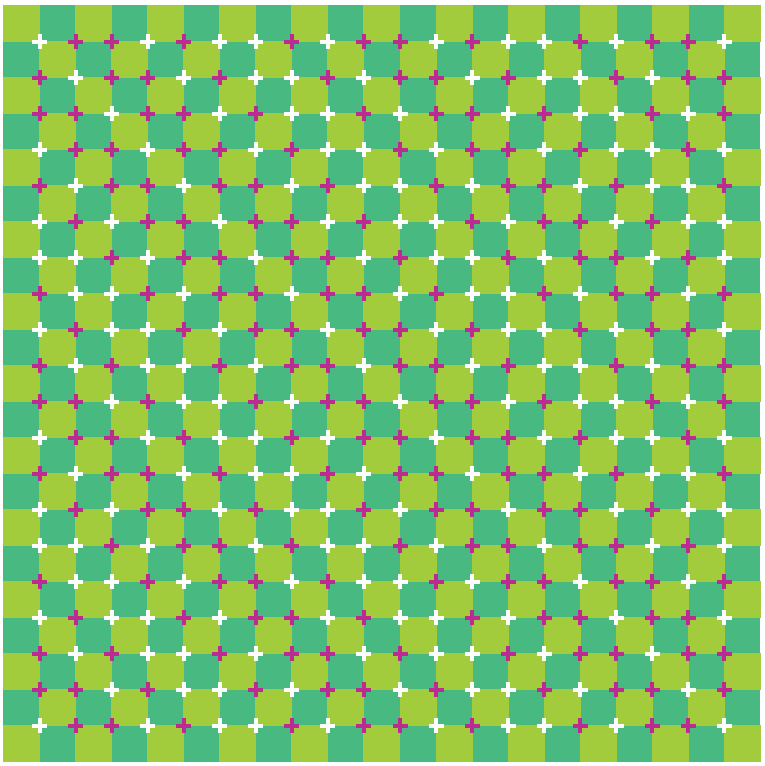


The primroses and ‘+’ symbols at the corners of each square make them look rounded which enhances the formation of waves.

Sequence:

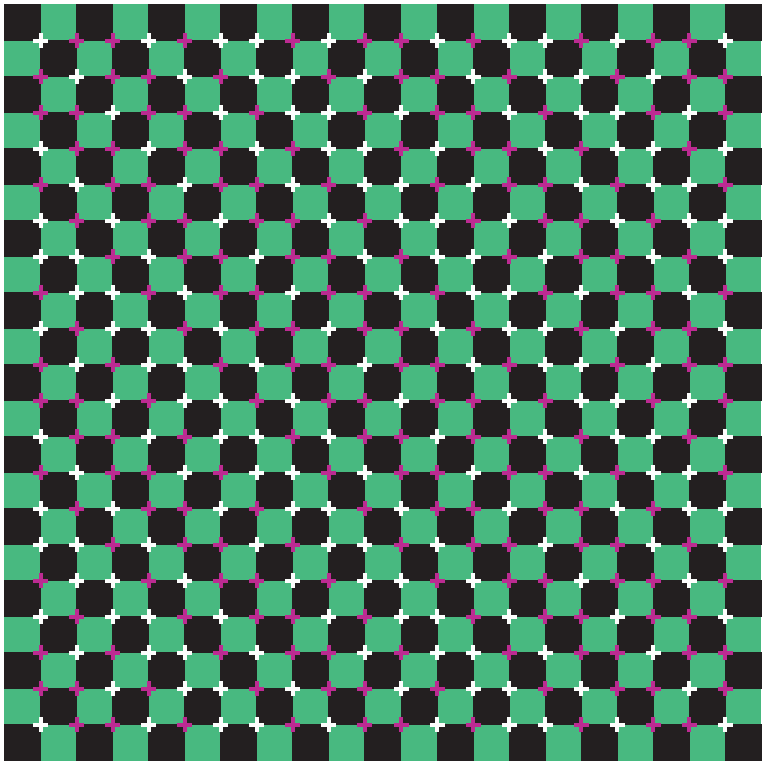
The primroses are arranged in a diagonal sequence with variations in them.

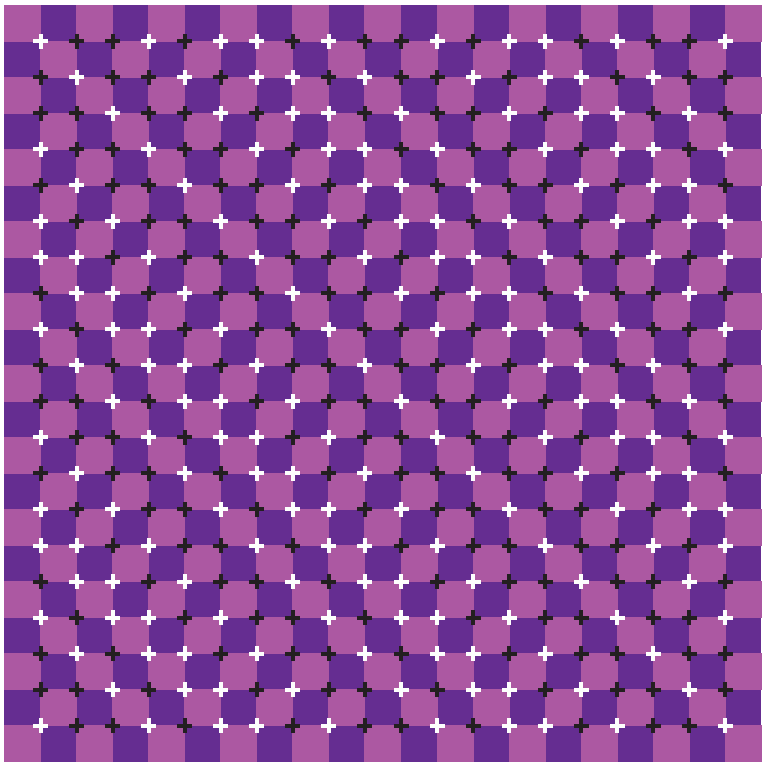


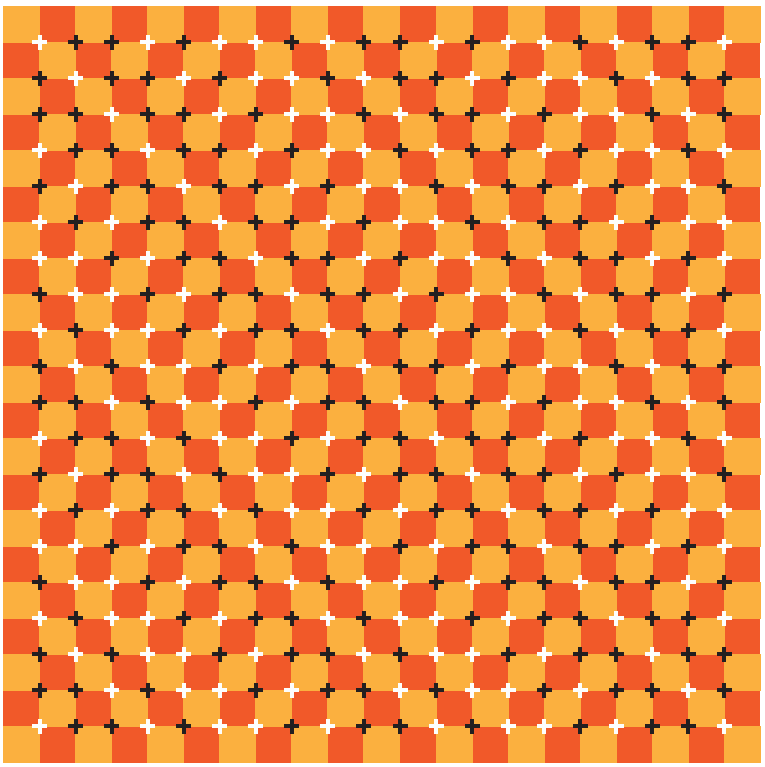


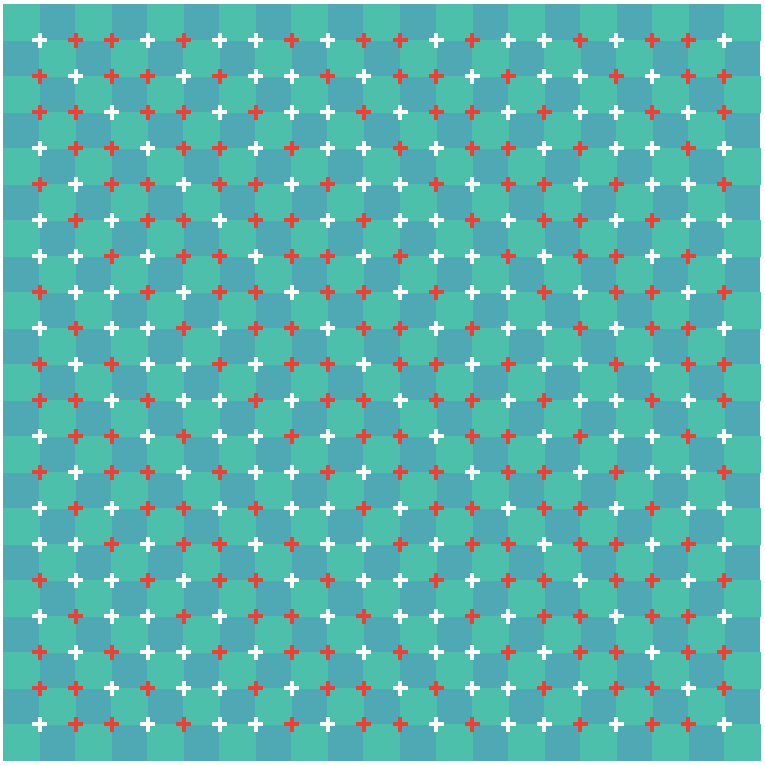
Sometimes there are 2 rows of '+' symbols and sometimes there is 1 row. The uneven repetitive sequence leads to the 'wave' effect.

Colors:



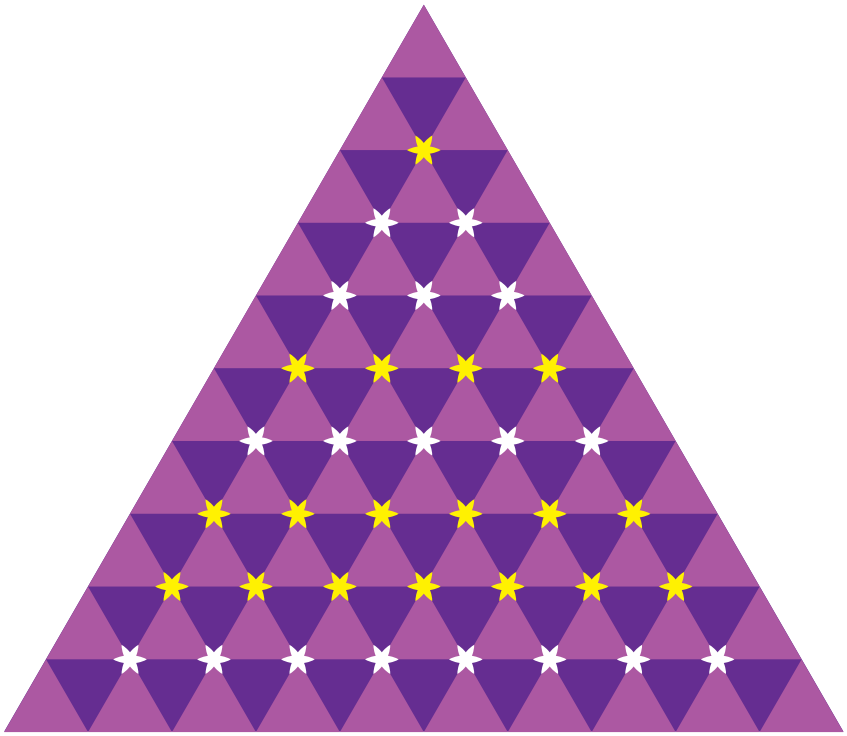


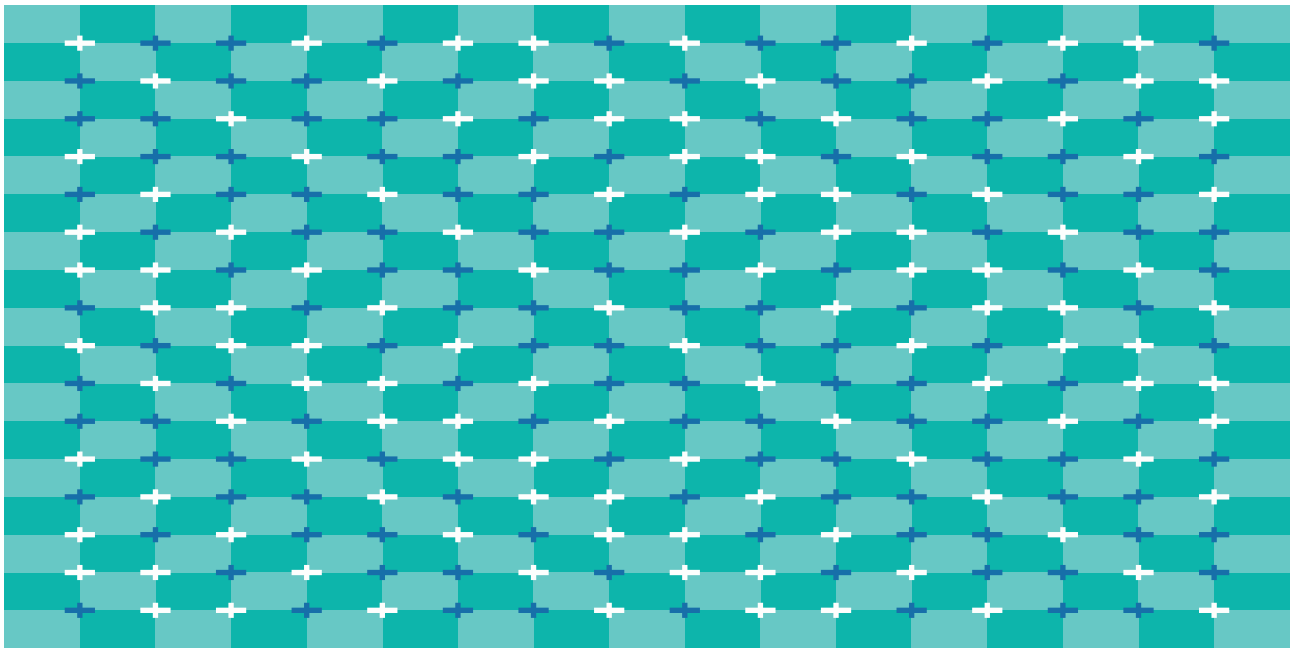




The wave effect is enhanced when the contrast between ‘+’ symbols is higher than the contrast between the squares.

Shapes:





The illusion is observed only in rectilinear shapes