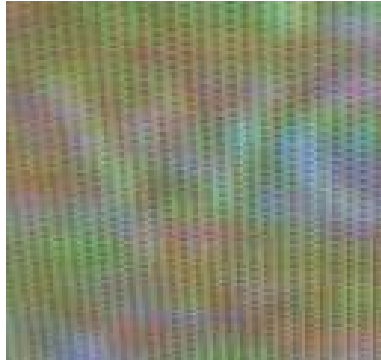


Optical Mixing



To Do and Notice:

Hold a magnifying glass close (1 to 3 inches) to a television screen or computer monitor. Adjust the distance between the magnifying glass and the screen until an array of colored dots or rectangles is clearly visible. Describe the color of the dots. How are the dots arranged?

What's Going On:

When two colors are right next to each other, your eye mixes them in a process called, "optical mixing." Optical mixing relies on the eye's inability to separate closely spaced objects. In the case of a TV screen, the objects are red, green, and blue light-emitting phosphors. Phosphors for each of the primary colors are clustered together in groups of three. In all, there are over 200,000 of these primary clusters. At a sufficient distance from a TV screen, the eye interprets each triad of colored dots as a single color.

Which phosphors are emitting light when a television screen or computer monitor is white? Black?

Optical mixing was employed by the pointillist painters. Perhaps the most famous example of the use of optical mixing in art can be found in the painting *Sunday Afternoon on the Island La Grande Jatte* painted by Georges Seurat in the late 1880s.

Optical mixing is also the basis for images seen on electronic signs and outdoor displays such as the Crown Fountain in Millennium Park.