

# Behavior of Colors in Watercolor

Demonstrations by Aline Souza

## 1- Getting to know some colors: getting acquainted with watercolor characteristics

We are going to start getting acquainted with color behavior by looking at color characteristics in watercolor. This is a mixture of science and art because each color is not only a tool for you to express different colors, but it is also a created artifact, with its own chemistry, history and physical properties. Another way of saying this is that every color has tendencies and personalities of their own.

Below are terms to help understand characteristic of colors.

## 2- Terms

**Transparency** refers to how much a color can cover a paper. Transparency is about letting light pass through or having paint layers that can be seen through. Watercolor is a medium that is known for being transparent, but some colors are more transparent than others. Makers of watercolor classify their paints as opaque or transparent. The more you can see through the layer of color, the more transparent it is.

**Opacity** is the opposite of transparency. The more opaque a color is, the less you see through a layer of paint with it. Opaque colors are likely to cover significantly more than transparent colors.

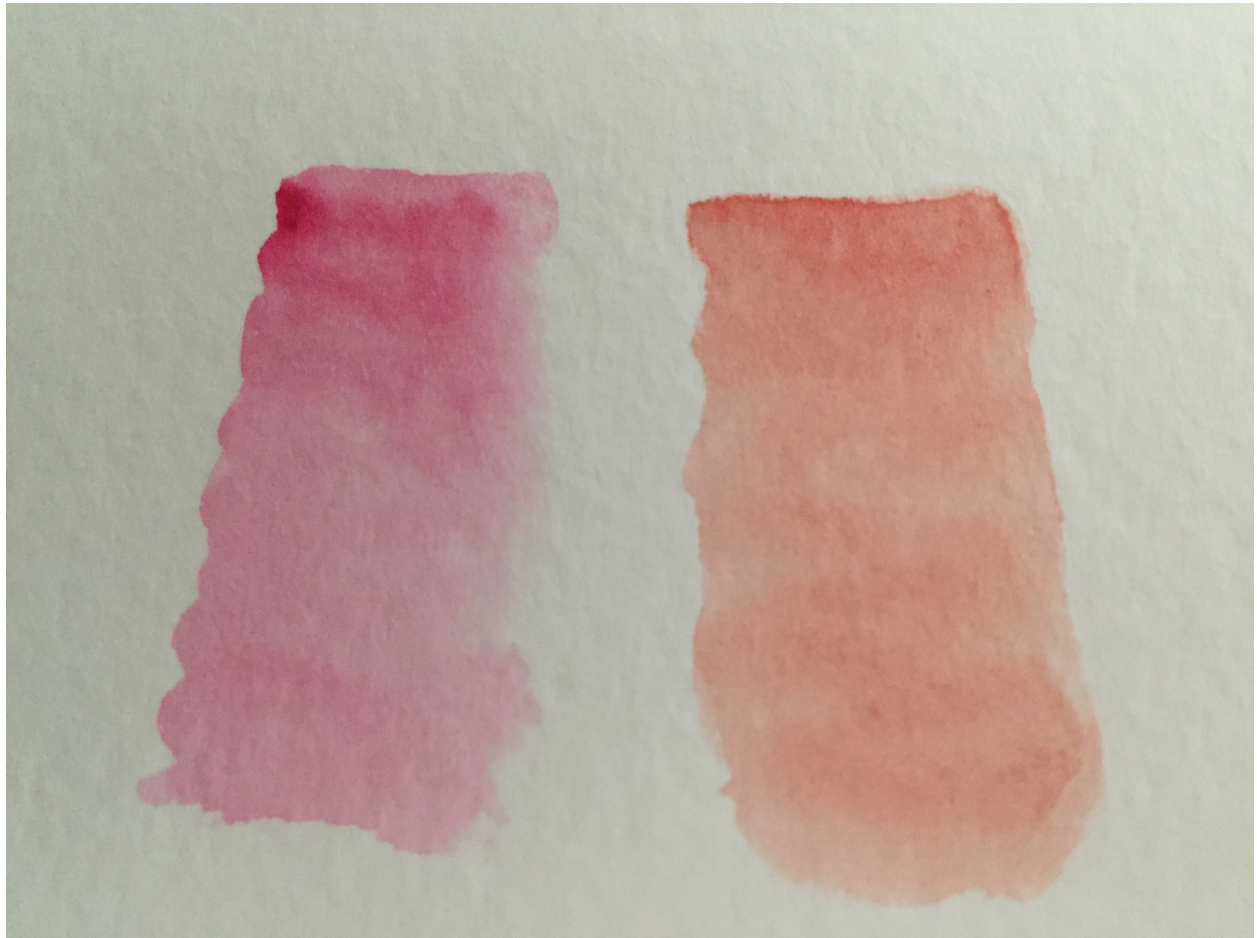
Example demonstration: Let's compare Winsor Blue and Neutral Tint. Winsor Blue is classified as transparent, and Neutral Tint is opaque.



Example demonstration:

Then we'll compare Permanent Rose and Cadmiun Red.

Permanent Rose is transparent and Cadmiun Red is opaque.



The transparency or opacity in pigments will affect the optical character of each individual color and the result of mixing colors. More transparent colors can help create a glazing effect by applying many washes on top of the other. The more opaque colors will flatter the washes because each layer will tend to cover the other. Opaque colors are useful for toning down color mixtures.

Example demonstration: Adding Neutral Tint to Windsor Blue

Opaque colors are useful for toning down color mixtures by covering a lot of the colors under them. This is how I often use Neutral Tint: I make mixtures darker and tone down certain areas of the painting. Please note that we will still be able to see through the mixture, as watercolor in general is a transparent medium. We are looking at subtle differences between colors. Marcos Silva, a professor I studied watercolor with used to say that painting with watercolor is like painting with tea.



Here we have unmixed Winsor Blue at the top, beside an unmixed Neutral Tint. Below them is the mixture of Winsor Blue and Neutral Tint.



**Granulation** refers to how a color settles in the paper, with their pigment particles creating a texture. Imagine that paper surfaces contain microscopic hills and valleys. If a color has large or different sized pigment particles, they may settle into differently in these little hills and valleys, producing a texture. Larger particles will not penetrate the paper very much.

**Staining** refers to colors that can penetrate the fibers of the paper more, because they have very fine particles. Once you apply a staining color to a paper, it will be a little bit harder to lift it or erase it from

the paper than it would be to try to erase a granulating color. If you apply a staining color on the paper and then try to erase it, you may end up with a stain.

Example demonstration:

Let's compare Ultramarine Violet and Permanent Rose. Ultramarine Violet is considered a granulating color. Notice how it formed a texture. Permanent Rose is a staining color. Notice how it spreads more smoothly on the paper.





### 3- Color Mixture

There are infinite possibilities of experimenting with watercolors and creating different mixtures. Let's mix different blues to one yellow in different amounts to create different greens and compare the results.

Colors used in this demonstration:

Cadmium Yellow (Opaque and Staining)

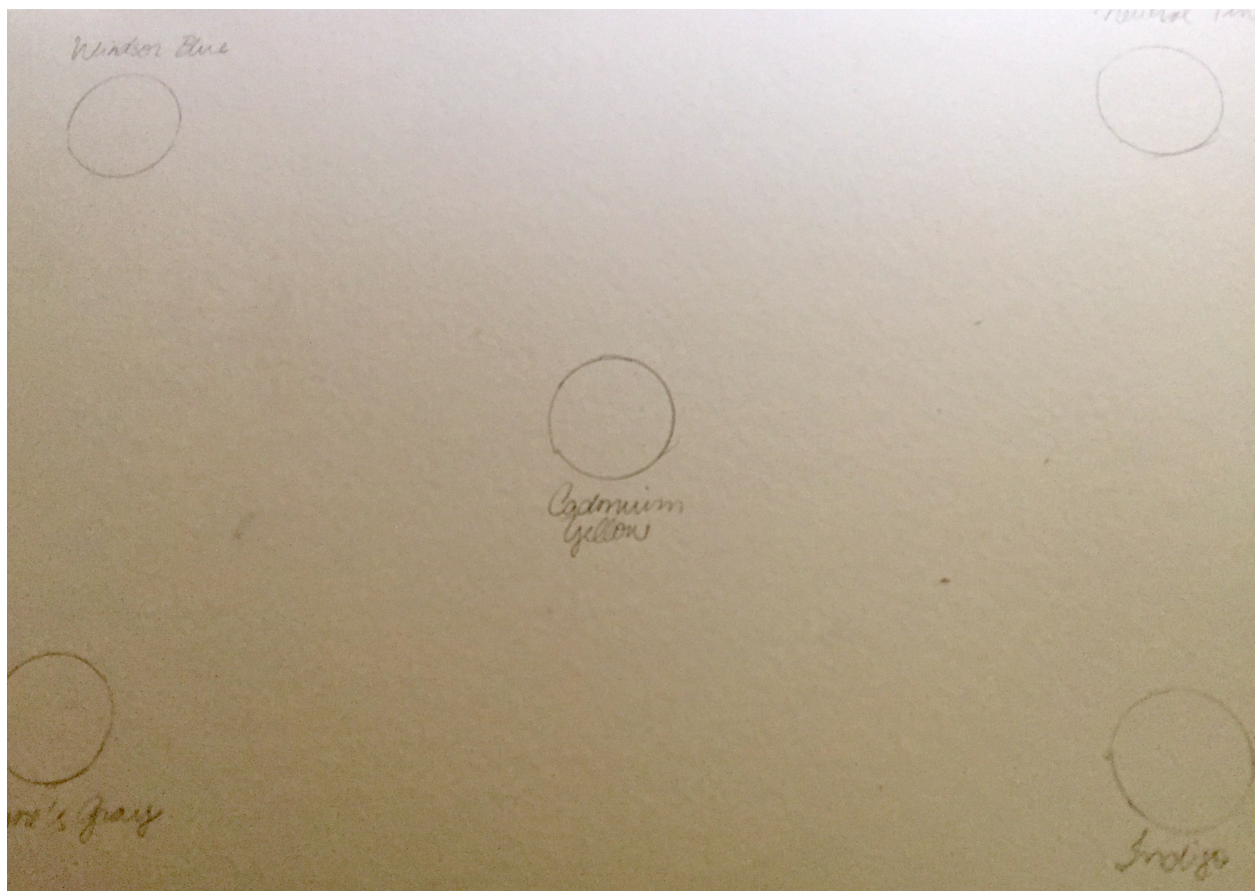
Payne's Gray (Semi-transparent and Staining)

Winsor Blue (Transparent and Staining)

Indigo (Opaque and Staining)

There are many ways of mixing these colors. We are going to make a chart to compare the mixtures systematically, controlling the number of layers we add to each mixture.

First, make 5 circles where your unmixed colors will be. I put Winsor Blue in one corner, Payne's Gray on the corner below, Neutral Tint on the other corner and Indigo on the lower right corner. It is important to place the spot for Cadmium Yellow in the center of the paper.



Paint the unmixed colors in their spots. Only the unmixed colors will be in these spots. No mixtures are going to happen in these spots.



Start mixing by painting two layers of Cadmium Yellow to each of the four empty circles adjacent to the unmixed Cadmium Yellow spot in the center.

Paint only one layer of Cadmium Yellow in the four empty circles away from the center.

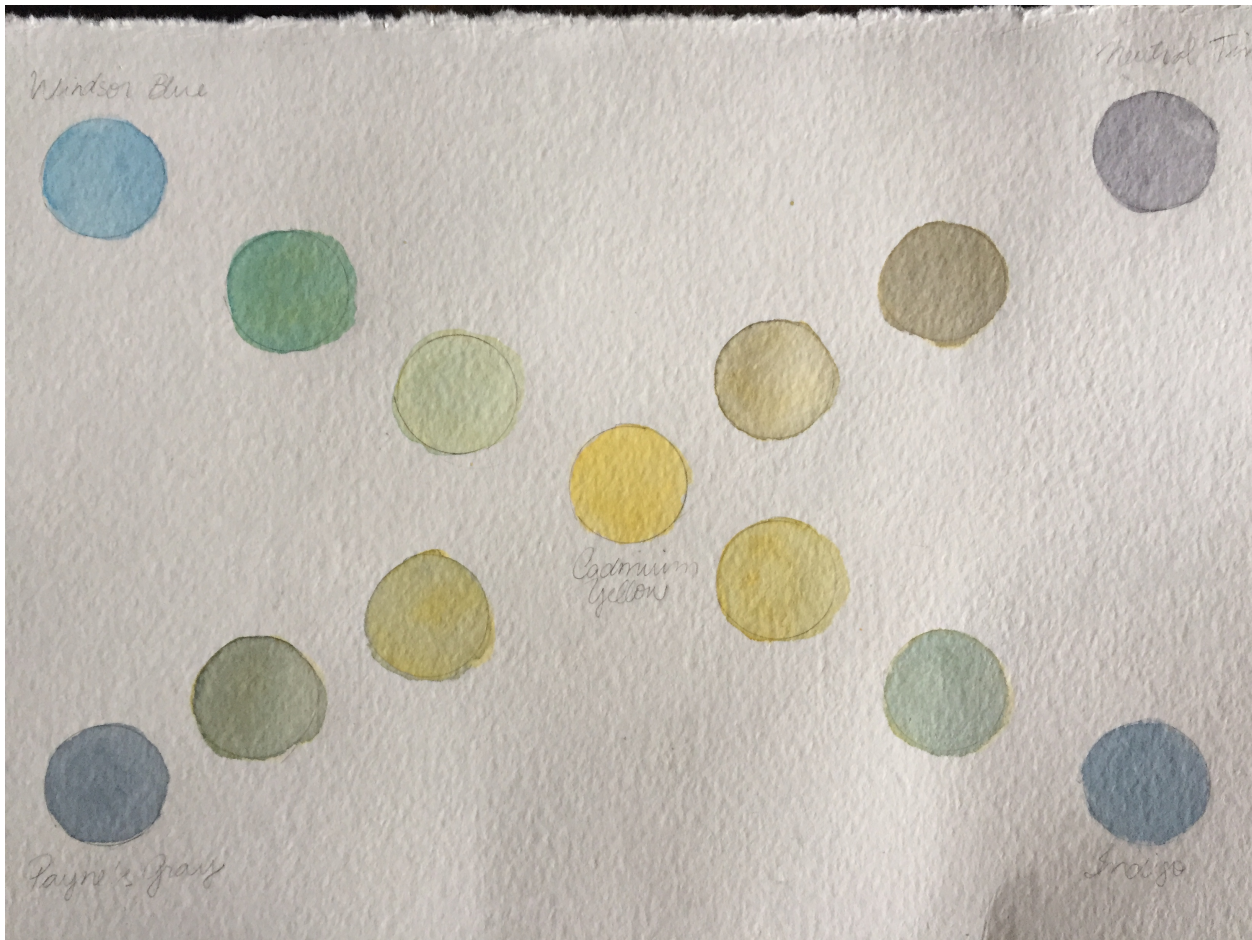
Paint two layers of Windsor Blue to the one empty circle adjacent to the unmixed Windsor Blue spot. This painting is going to be done on top of the one layer of Cadmium Yellow that we painted as instructed above.

Next paint one layer of Windsor Blue in the circle close to the center.

Paint two layers of Payne's Gray in the circle adjacent to Payne's Gray. Paint one layer of Payne's Gray in the circle close to the center with unmixed Cadmium Yellow.

With the completed chart, we can look at the mixtures and compare them:





Winsor Blue is a staining and transparent color. It is now mixed with an opaque color, Cadmium Yellow. They are both transparent, and we can see that the yellow transformed the blue, but it also gave us a more toned down green, letting some of the coldness from Winsor Blue come through.

In the mixtures between the two opaque colors Cadmium Yellow and Indigo, we can see warmer and stronger greens. The greens obtained from mixing Payne's Gray and Neutral Tint to yellow have a warm brown character, varying according to the intensity of the unmixed colors.

#### **4- Painting of a Tree Demonstration (Fast Painting)**

Now that we saw the terms that define some characteristics in watercolor, we'll see how thinking about these characteristics can impact the artistic practice. With practice, you will get to know each color better and associate their characteristics with personalities or tendencies.

In this demonstration I used the following colors, as mentioned in the video:

Burnt Umber  
Burnt Sienna

Cadmium Yellow  
Indigo  
Neutral Tint

For the tree trunk:

Burnt Umber and Burnt Sienna are both transparent colors, very permanent, more staining colors. I used Burnt Sienna for its shining qualities from its a synthetic iron oxide pigments. I used Burnt Umber for its natural pigments to obtain discrete brown tones. I added shaded and toned them down further with Neutral Tint, an opaque color that can cover Burnt Umber and Burnt Sienna if I apply concentrated amounts of it with my brush strokes.

For the tree top:

I used various levels of mixture of Cadmium Yellow with Indigo to obtain different greens. The less Indigo I had in the mix, the more it was lighter in color and the more it let light come through. With more Indigo, the green became stronger, heavier in the paper, darker and more opaque. I used Neutral Tint to tone shaded areas of the tree even more, for even more contrast with the light areas that have more Cadmium Yellow in the mix.

