

Mixing Gray: Mixing gray is simple. Basically, mixing complimentary colors and then adding white will produce a range of Grays. Complimentary colors are those which are opposite each other on the color wheel.

However, if you don't have a color wheel handy.... I have found that there is a simpler way of mixing grays and understanding compliments.

How do you determine what the complimentary color is without a color wheel? The Primary Colors are Red, Blue, and Yellow.

To keep it simple think of the three primary colors. Just pick any two primary colors and mix them. The remaining primary that you did not use is the compliment of the mix you made.

For example:

- Take blue. How do you determine its compliment? Mix the two remaining primary colors (yellow and red) and the resulting orange is the complimentary color to blue. When you mix blue and orange plus white you get gray. If your mix comes out brown, play with the proportions of the color (you probably have too much yellow or not enough blue) until you get it right.
- Take Red. How do you determine its compliment? Add the two remaining primary colors (blue and yellow) and when mixed you get green. Green is the compliment to red. Add green and white to Red and you get gray. If you get brown play with the proportions of the colors until you get it right.

Now it gets a little trickier, let's start with a mixed color (a secondary color):

- Take violet. How do you determine its compliment? What is violet? It is blue and red mixed together. So, the remaining primary is yellow and that is the compliment to violet. Add yellow and white to violet and you get gray. Etc. This mix tends to lean brown so you must play with the proportions of the mix, perhaps adding more blue for example.

Keep in mind that the color temperature can affect the mixes. There are warm reds that lean more to the orange side by containing some yellow like Cadmium or Pyrrole Red light. And there are cool reds that contain some blue and are cooler like Alizarin Crimson. Same is true for yellow - Lemon Yellow is cool since it has a bit of green and Yellow Ochre is warm since it has a bit of red in it. Ultramarine Blue is warm since it contains some red and Phthalo Blue is cool since it contains green. So mixing colors is one thing, but different color temperatures will alter the color mix as well. You need to consider this in your mixing. If you want to experiment try to find colors that have as little 'color bias' as possible. Neutral primaries are ideal but not all paint companies make 'primary colors'. So, you can try Hansa Yellow Medium, Quinacradone Red, and Cerulean Blue as your primaries.

If you were mixing violet for example and used Ultramarine Blue and Cadmium red you would get a really nasty bland violet. The reason is because there is so much red in the Ultramarine and there is so much yellow in the Cadmium that you are, in effect, adding orange (red and yellow) to the ultramarine blue. Orange and blue are compliments so they dull or gray down each other. A much better mix for

violet would be Crimson and Ultramarine, or Crimson and Cobalt Blue. If you mixed Crimson and Phthalo Blue green shade, again you might have a problem because the green in the Phthalo will neutralize the red in the crimson since red and green are compliments. So, all of this knowledge of 'color temperature' or 'color bias' will help you in your color mixing.

Here are a few practical applications for using compliments:

1. Making a bright green field of grass look more natural by glazing over the dried bright green paint with a transparent layer of red
2. Creating the shadow side of a red apple by adding green to your red to make a very dark red
3. Adding violet to the shadow side of a lemon

Greens and Rich Darks:

Here are a few mixes for creating Greens and Darks.

1. Make a range of greens with
 - a. Quinacridone Gold +
 - i. Prussian blue or..
 - ii. French ultramarine blue or..
 - iii. Phthalo turquoise or..
 - iv. Phthalo blue green shade
 - b. Prussian blue+
 - i. Burnt sienna (intense dark, dark, green)
 - c. Phthalo Blue+
 - i. Burnt Sienna or
 - ii. Burnt Umber or
 - iii. Raw Umber
 - d. For a nice 'sap green' try phthalo green blue shade and yellow ochre.
 - e. For an intense cool green try phthalo green blue shade and white
 - f. For an intense light green try phthalo green blue shade and yellow
 - g. For a teal green (good for distant foliage) try phthalo green blue shade, white, and ultramarine blue
 - h. And of course, Phthalo Green blue shade with a range of yellow and yellow ochre makes a nice range of greens.
2. Create Intense Darks with
 - a. Perm. Alizarin Crimson+
 - i. Phthalo green blue shade or
 - ii. Viridian (a lighter dark)

or....

b. Pyrrole Crimson+

1. Phthalo green blue shade (intense black) or
2. Viridian (a lighter dark)

and,

c. French Ultramarine Blue

1. Burnt sienna (warm black) or
2. Burnt umber (cool black) or
3. Raw umber (cool gray and black)

For Black I have two favorite mixes:

1. Ultramarine Blue and Burnt Sienna (add white to make a neutral gray).
 - a. You can steer this mix by adjusting the proportions of the colors to the brown side, the blue side, or neutral black
2. Phthalo Green Blue Shade and Permanent Alizarine Crimson or Quinacradone Crimson.
 - a. You can steer this mix to the green side or the red side or neutral black
3. Add White to the black(s) you have created for a wide range of grays.

Note: if you are painting in watercolor, the paper is your 'white'.