Blend Mode Descriptions

BLEND MODE	DESCRIPTION
	NORMAL GROUP
Normal	The normal mode where no math is applied.
Dissolve	The Dissolve blend mode on acts on transparent and partially transparent pixels – it treats transparency as a pixel pattern and applies a diffusion dither pattern.
	DARKEN GROUP
Darken	If the pixels of the selected layer are darker than the ones on the layers below, they are kept in the image. If the pixels in the layer are lighter, they are replaced with the tones on the layers below (they show through to the selected layer), so basically the darker tones of all layers are kept. Note that this behavior is on a channel by channel basis, i.e., this rule is applied to each of the 3 RGB color channels separately. If you want to apply the same Darken blend mode behavior on a composite basis, use the Darker Color blend mode instead (however this typically results in harsher transitions).
Multiply	The best mode for darkening. Works by multiplying the luminance levels of the current layer's pixels with the pixels in the layers below. Great for creating shadows and removing whites and other light colors (while keeping the darker colors). As an analogy, think of the selected layer and all of the layers below as individual transparencies, and that they are stacked on top of each other, and then placed on an overhead projector. Using this analogy, the light passing through the lighter areas will have trouble getting through the darker areas, but the lighter areas will shine through other lighter areas with relative ease. If the Multiply blend mode isn't dark enough for what you're working on, try the Linear Burn or Color Burn modes. **Math: A×B** *(Active Layer multiplied by Background Layer).*
Color Burn *(Special 8)*	Darker than Multiply, with more highly saturated mid-tones and reduced highlights. This is one of the "Special 8" that I mentioned earlier, where Fill and Opacity behave differently. **Math: 1–(1–B)÷A**(Background Layer inverted, divided by Active Layer, and the quotient is then inverted).
Linear Burn *(Special 8)*	Darker than Multiply, but less saturated than Color Burn. This is one of the "Special 8" that I mentioned earlier, where Fill and Opacity behave differently. **Math: A+B–1**(Active Layer plus Background Layer, then white is subtracted from the sum (an inversion).
Darker Color	Similar to the Darken blend mode, but darkens on the composite channel, instead of separate RGB color channels.
	LIGHTEN GROUP
Lighten	If the pixels of the selected layer are lighter than the ones on the layers below, they are kept in the image (the opposite of the Darken blend mode). If the pixels in the layer are darker, they are replaced with the pixels on the layers below (they show through to the selected layer). Note that this behavior is on a channel by channel basis, i.e., this rule is applied to each of the 3 RGB color channels separately. If you want to apply the same Lighten blend mode behavior on a composite basis, use the Lighter Color blend mode instead (however this typically results in harsher transitions).
Screen	Similar to the Lighten blend mode, but brighter and removes more of the dark

BLEND MODE	DESCRIPTION
	pixels, and results in smoother transitions. Works somewhat like the Multiply blend mode, in that it multiplies the light pixels (instead of the dark pixels like the Multiply blend mode does). As an analogy, imagine the selected layer and each of the underlying layers as being 35mm slides, and each slide being placed in a separate projector (one slide for each projector), then all of the projectors are turned on and pointed at the same projector screen…this is the effect of the Screen blend mode. This is a great mode for making blacks disappear while keeping the whites, and for making glow effects. **Math: 1−(1−A)×(1−B)** (A inverted multiplied by B inverted, and the product is inverted).
Color Dodge *(Special 8)*	Brighter than the Screen blend mode. Results in an intense, contrasty color- typically results in saturated mid-tones and blown highlights. **Math: B÷(1−A)** (B divided by A inverted).
Linear Dodge (Add)*(Special 8)*	Brighter than the Color Dodge blend mode, but less saturated and intense. This mode "Adds" the luminance levels. **Math: A+B (A plus B)**.
Lighter Color	Similar to the Lighten blend mode, but lightens on the composite channel, instead of separate color channels. Compares each pixel and gives you the lighter of the two (and usually results in harsher transitions).
	CONTRAST GROUP
General Notes	All of the Contrast modes work by lightening the lightest pixels, darkening the darkest pixels, and dropping the gray mid-tones (50% gray). This is achieved by using combinations of the lightening and darkening modes from the Lighten and Darken groups. The Contrast blend modes work by checking if the colors are either darker than medium gray, or lighter than medium gray. If they are darker than medium gray, then a darkening blend mode is applied. Conversely, if the colors are brighter than medium gray, then a brightening mode is applied. The mid-point (50% gray), is dropped. For each of the Contrast blend modes, the math is applied against complementary (opposite) blend modes. For example, the Overlay blend mode uses a combination of the Multiply and Screen Blend modes, and these modes are complements of each other. The other complementary blend modes are: Darken/Lighten, Color Burn/Color Dodge, Linear Burn/Linear Dodge (Add), Darker Color /Lighter Color.
Overlay	Uses a combination of the Screen blend mode on the lighter pixels, and the Multiply blend mode on the darker pixels. It uses a half-strength application of these modes, and the mid-tones (50% gray) becomes transparent. One difference between the Overlay blend mode and the other Contrast blend modes, is that it makes its calculations based on the brightness of the layers below the active layer—all of the other Contrast modes make their calculations based on the brightness of the active layer. To get results similar to the Overlay mode, but where the blend mode favors the active layer, use the Hard Light blend mode (it uses similar logic, but favors the active layer). Another thing to note about the Overlay blend mode, is that it and the Hard Light blend mode are commuted versions of each other. This means that if you apply the Overlay blend mode to the active layer, you will get the same effect if you apply the Hard Light blend mode to the layer below, and then switch the order of the layers.
Soft Light	Uses a combination of the Screen blend mode on the lighter pixels, and the Multiply blend mode on the darker pixels (a half-strength application of both modes). Similar to the Overlay blend mode, but results in a more organic effect that is softer—results in somewhat transparent highlights and shadows.

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Hard Light	Uses a combination of the Linear Dodge blend mode on the lighter pixels, and the Linear Burn blend mode on the darker pixels. It uses a half-strength application of these modes, and logic similar to the Overlay blend mode, but favors the active layer, as opposed to the underlying layers. The effect is more intense than the Overlay blend mode, and results in harsher light. Another thing to note about the Hard Light blend mode, is that it and the Overlay blend mode are commuted versions of each other. This means that if you apply the Hard Light blend mode to the active layer, you will get the same effect if you apply the Overlay blend mode to the layer below, and then switch the order of the layers.
Vivid Light *(Special 8)*	Uses a combination of the Color Dodge Mode on the lighter pixels, and the Color Burn blend mode on the darker pixels (a half-strength application of both modes). Similar to the Hard Mix blend mode in overdrive, and typically results in a more extreme effect.
Linear Light *(Special 8)*	Uses a combination of the Linear Dodge blend mode on the lighter pixels, and the Linear Burn blend mode on the darker pixels (a half-strength application of both modes). Similar to the Vivid Light blend mode in overdrive, and typically results in a more extreme effect.
Pin Light	Uses a combination of the Lighten blend mode on the lighter pixels, and the Darken blend mode on the darker pixels (a half-strength application of both modes). If the dark pixels on the active layer are darker than the dark pixels on the underlying layers, they will be visible, if they aren't, they drop away. If the pixels on the active layer are lighter than the pixels on the underlying layers, they will also be visible, if they aren't, they drop away. This is a wild blend mode that can result in patches or blotches (large noise), and it completely removes all mid-tones.
Hard Mix *(Special 8)*	Uses the Linear Light blend mode set to a threshold, so for each RGB color channel, pixels in each channel are converted to either all black or all white. Once the math is applied to each separate channel, and the composite channel is created, the resulting composite can contain up to 8 colors: Red, Green, Blue, Cyan, Magenta, Yellow, Black and White. Note that this mode is a member of the "Special 8″ blend modes, and it reacts differently to Fill Opacity than it does to Standard Opacity. If you reduce the Fill Opacity when using this mode, the number of colors in the image will increase beyond the previously mentioned 8 colors. This can be considered another one of the extreme blends modes, but adjusting the Fill Opacity, the effect can be tempered and great results can be attained.
INVERSION GROUP	
Difference *(Special 8)*	Subtracts a pixel on the active layer, from an equivalent pixel in the composite view of the underlying layers (B-A), and results in only absolute numbers (the subtraction never produces a negative number—if it turns out to be a negative number, it's converted into a positive number). It does a selective inversion where black never gets inverted, white inverts absolutely, and all of the other luminance levels invert based on their brightness on a channel-by-channel basis. With this blend mode, similar colors cancel each other, and the resulting color is black.
Exclusion	Subtracts a pixel on the active layer, from an equivalent pixel in the composite view of the underlying layers (B-A), and results in only absolute numbers (the subtraction never produces a negative number). It does a selective inversion where black never gets inverted, white inverts absolutely, and all of the other luminance levels invert based on their brightness on a channel-by-channel

BLEND MODE	DESCRIPTION
	basis. With this blend mode, similar colors cancel each other, and the resulting color is gray. This mode is basically the same as the Difference blend mode, except when similar colors cancel each other, the resulting color is gray instead of black.
CANCELLATION GROUP	
Subtract	Subtracts a pixel on the active layer, from an equivalent pixel in the composite view of the underlying layers (B-A). Similar to the Difference mode, but doesn't convert the whites to an absolute number. Blacks don't change any colors (because black = 0, and AnyColor – 0 = AnyColor), and whites drop out to blacks (because whites are such a large number, and all of the other numbers will be less than whites, so the resulting color will always be black). With this blend mode, similar colors cancel each other, and the resulting color is black. **Math: B–A** (B minus A).
Divide	Divides a pixel on the active layer, from an equivalent pixel in the underlying layers on a channel by channel basis (B÷A). This mode typically results in extreme highlights because dividing the "standardized" luminance numbers results in a larger number. Whites don't change any colors (because white = 1, and AnyColor÷1 = AnyColor). Similar colors turn white (because AnyColor÷Anycolor = 1), with the exception of blacks, which stay black (because 0÷0 = 0). **Math: B÷A** (B divided by A).
COMPONENT GROUP	
Hue	Keeps the Hue of the active layer, and blends the luminance and saturation of the underlying layers (you basically get the image from the lower layer with the colors of the top layer).
Saturation	Keeps the saturation of the active layer, and blends the luminosity and hue from the underlying layers—where colors from the active layer are saturated, they will appear using the luminosity and hue from the underlying layers.
Color	Keeps the color of the active layer, and blends the hue and saturation (the color) of the active layer with the luminance of the lower layers (a handy way to change the color of an image). Another thing to note about the Color blend mode, is that it and the Luminosity blend mode are commuted versions of each other. This means that if you apply the Color blend mode to the active layer, you will get the same effect if you apply the Luminosity blend mode to the layer below, and then switch the order of the layers.
Luminosity	Keeps the luminance of the active layer, and blends it with hue and saturation (the color) of the composite view of the layers below. This results in the colors of the underlying layers being blended with the active layer, and replacing them. Another thing to note about the Luminosity blend mode, is that it and the Color blend mode are commuted versions of each other. This means that if you apply the Color blend mode to the active layer, you will get the same effect if you apply the Luminosity blend mode to the layer below, and then switch the order of the layers.

The "*Special 8*" Blend Modes

There are 8 blend modes that I'll be referring to as the "*Special 8*." These blend modes behave differently when Fill Opacity is adjusted, compared to when standard Opacity is adjusted. The blend modes that aren't members of this *Special 8* group react the same to both Fill and Opacity changes (*assuming there are no Layer Effects*), but with these *Special 8* blend modes, 40% Opacity will look different than 40% Fill, or 30% Opacity will look different than 30% Fill, etc. For all of the other blend modes (the modes that aren't part of the *Special 8*), 40% Opacity looks the same as 40% Fill, or 20% Opacity looks the same as 20% Fill, etc. This is an important concept to understand, because it can extend the capabilities of these blend modes. For example, the Hard Mix blend mode usually doesn't look all that great, but when you adjust the Fill Opacity for this mode, you can get some great results. The blend modes that are members of this *Special 8* group are Color Burn, Linear Burn, Color Dodge, Linear Dodge (Add), Vivid Light, Linear Light, Hard Mix, and Difference.

The "Special 8"

Blend Modes that react differently
to Fill Opacity than Standard Opacity

	Normal
	Dissolve
	Darken
	Multiply
Color Burn	Color Burn
Linear Burn	Linear Burn
	Darker Color
	Lighten
	Screen
Color Dodge	Color Dodge
Linear Dodge (Add)	Linear Dodge (Add)
	Lighter Color
	Overlay
	Soft Light
	Hard Light
Vivid Light	Vivid Light
Linear Light	Linear Light
	Pin Light
Hard Mix	Hard Mix
Difference	Difference
	Exclusion
	Subtract
	Divide
	Hue
	Saturation
	Color
	Luminosity