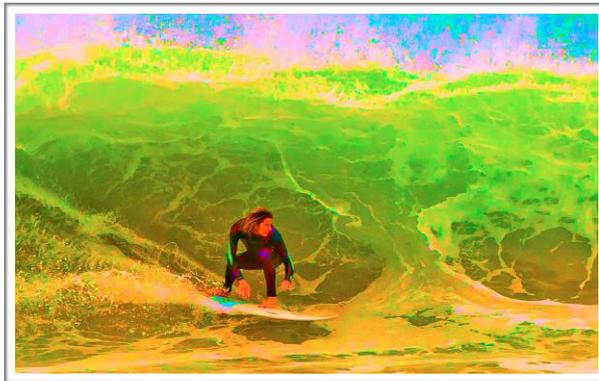


# BLENDING MODES



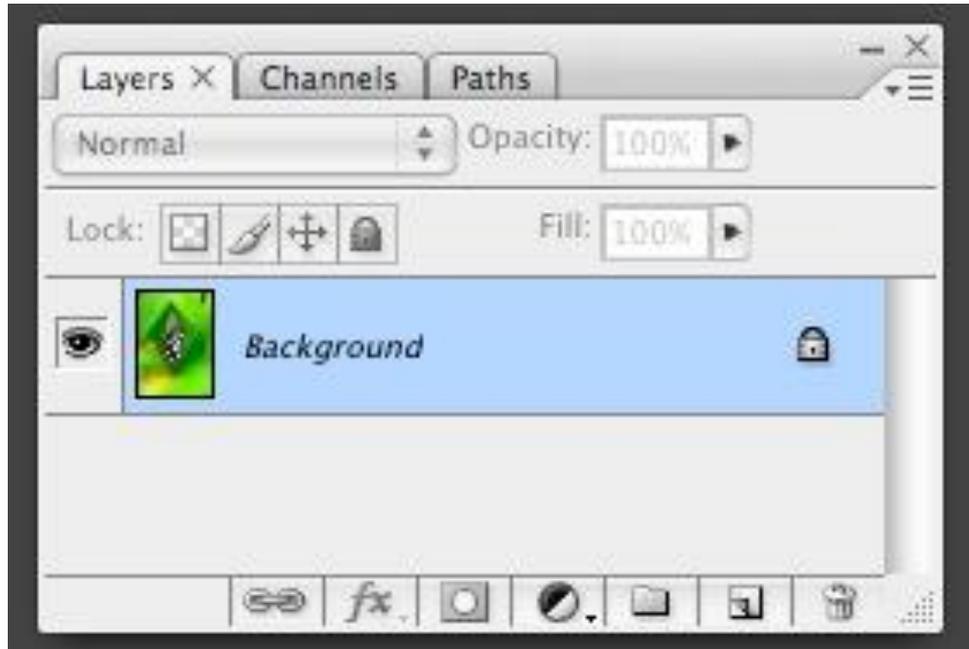
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# BLENDING MODES

## SOME REMINDERS ABOUT LAYERS

When you open an image in Photoshop it becomes the *background* layer and you can see it in the Layers Palette.



If you are not very familiar with the use of layers you might like to refer to my “Layers, Masks and Channels” tutorial that is available on the Belmont 16s Photography Club website under the *Members > Training Activities and Downloads* menu item.

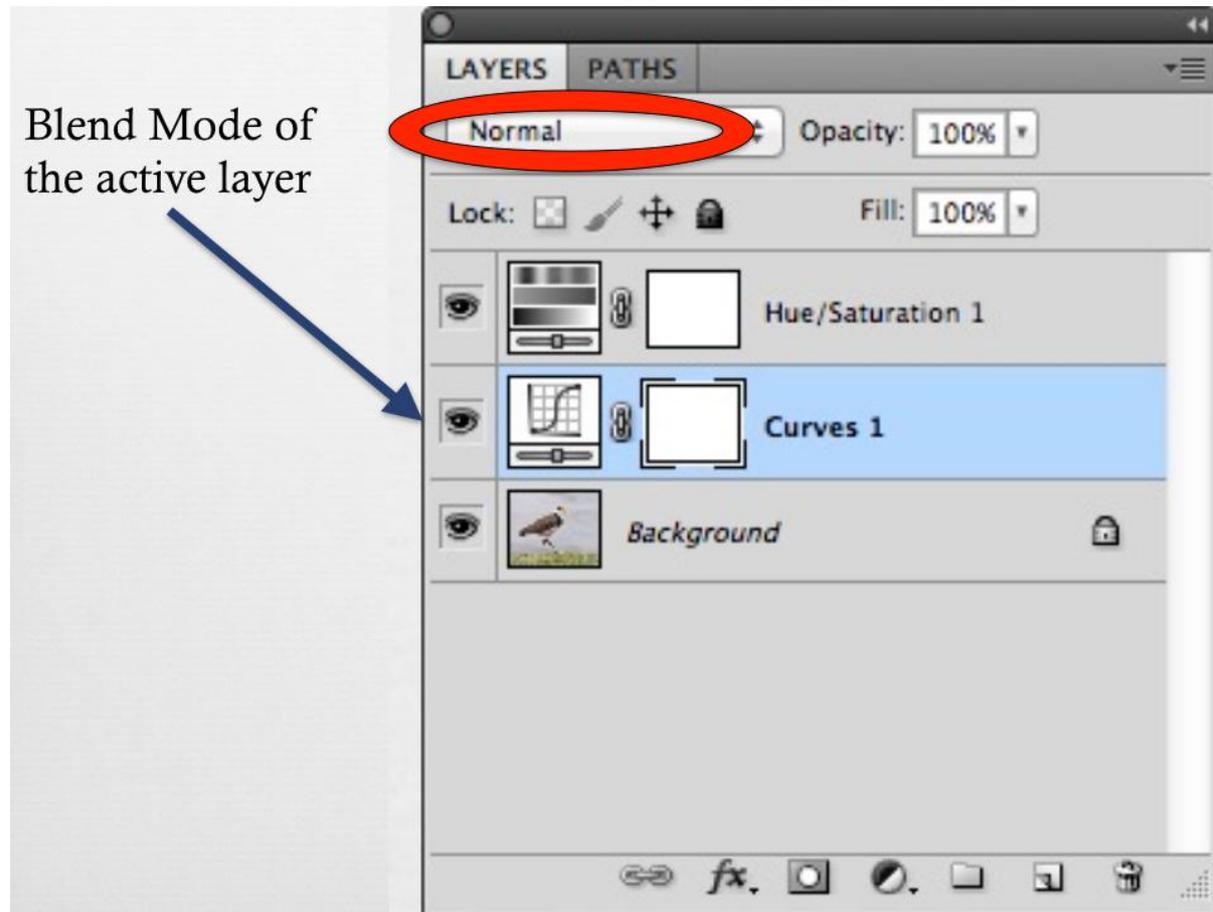
You can add layers above the background layer and what you will see in the image preview area depends on:

- The type of layer you add (e.g. image, adjustment, fill, etc).
- The content of the layer if it is an image or fill layer (e.g. whether or not the content covers the full image area).
- The adjustments made on the layer if it is an adjustment layer.
- The opacity of the layer you added.
- The blending mode of the layer you added.

In this tutorial, I will be exploring some of the mysteries and applications of Layer Blending Modes, sometimes called Layer Blend Modes.

By default, when you add any type of new layer its blending mode will be set to “Normal” and you can see this in the panel just below the “LAYERS” tab on the layers palette. This panel always shows the blending mode of whichever layer you have

selected in the layers palette, regardless of whether or not that layer is on the top of the stack of layers.



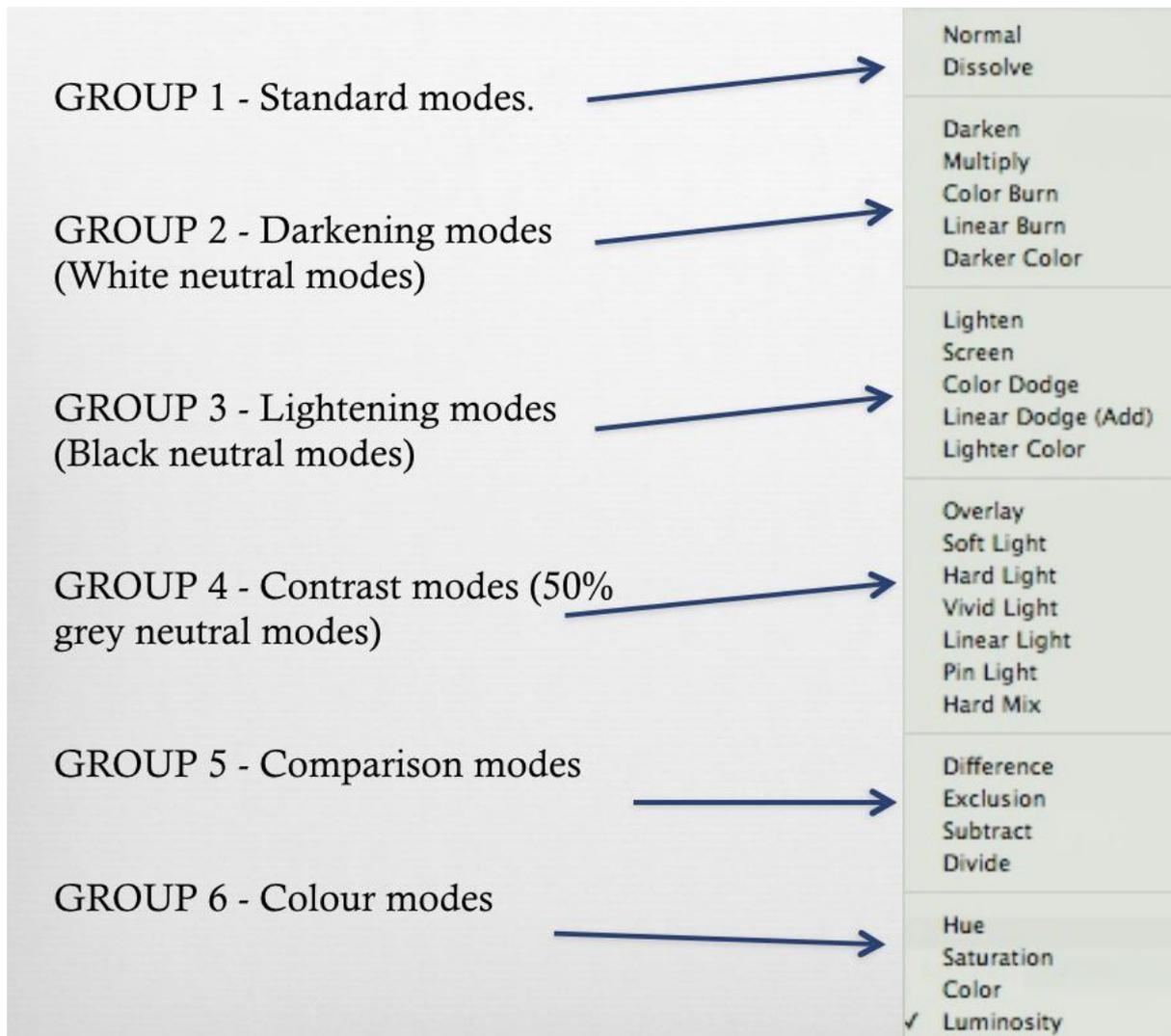
## WHAT DO THE BLENDING MODES DO?

Blend modes are simply instructions that tell Photoshop how to change the way in which layers interact with one another. For blend modes to work, we need at least two layers in Photoshop. I will refer to the bottom layer as the base layer and the top layer as the blend (or blending) layer. You always need to set the blend mode on the blend (top) layer in order to get Photoshop to use that blend mode to alter the appearance of the image.

When you change the blend mode on a layer you are not changing the pixels in the layer (if it is an image or fill layer) and you are not changing the function of the layer if it is an adjustment layer. *Changing the blend mode simply changes the calculations that Photoshop does in order to display the image on the screen.* The blend mode controls the way that the blend layer and the base layer interact.

When the blend mode is set to Normal, the blend layer will behave in the way that you expect it to behave - an image layer will place an image in the preview area, an adjustment layer will allow you to make adjustments such as Levels, and so on.

You can change the blend mode on any layer except the background layer. You can change the blend mode by clicking on the double-header arrow to the right of the name of the blend mode. This will drop down the list of options shown here.



Notice on the drop-down list of available blend modes that they are divided into six groups. The blending modes in each group have some common characteristics; for example, all the blend modes in Group 4 will alter the contrast in the image in some way. If you become familiar with the general purpose of each group of blending modes you will soon feel comfortable selecting the specific mode that you need for a particular editing function. Don't try to remember exactly what each blend mode does. It is enough to remember the general effects of each group of blending modes - then you can experiment with a variety of images to understand which blending modes will help to produce the effect you want in a particular image.

The calculations that Photoshop does when you change the blend mode are usually done on each of the Red, Green and Blue channels, so sometime the result you get can be surprising. However, some blend modes use calculations based on a composite of the RGB values.

When editing photographs, you will find some of the blending modes are much more useful than others (multiply, screen, overlay and luminosity are probably the blend modes that you will use most frequently. However, other modes can be better for achieving specific effects. *You have to be prepared to experiment.*

Some blend modes act like filters - they either pass or block certain colours. Other blend modes work by comparing the corresponding pixels on each layer and produce a result that depends on the hue, saturation and brightness of the pixels being compared.

There are four important general features of all blend modes that are worth noting.

- Blend modes are non-destructive. You can change the blend mode on a layer as often as you like without altering any of the pixels in the layer.
- When you save a layered file (in PSD or TIFF format) the blend modes of all layers are saved.
- Changing the blend mode of one or more layers does not change the file size when the file is saved.
- The effects of some blend modes change when you change the Opacity (or the Fill) of the blend layer.

These notes are a *basic introduction* to blend modes. I will cover some of the following blending possibilities:

*Image blending:* Two different images are opened as layers and the blend mode of the top layer is changed.

*Layer self-blending:* A single image is opened and the layer containing that image is duplicated. The blend mode of the duplicate layer is then changed.

*Inverted layer self-blending:* A single image is opened and the layer containing that image is duplicated. The duplicate layer is inverted and then the blend mode of the inverted layer is changed.

*Filtered self-blend:* The image layer is duplicated and then a filter (such as Gaussian Blur) is applied to the layer. The blend mode on the filtered layer is then changed.

*Selection blend:* A selection is made on the image layer and that selection is copied to a new layer. The blend mode of that new layer is then changed.

*Fill blend:* A fill or gradient layer is created above the image layer and the blend mode on the new layer is changed.

*Adjustment blend:* An adjustment layer is added above the image layer and the blend mode of the adjustment layer is changed.

What I suggest you do to develop your understanding is select two images that have quite different content and open them as layers in the same Photoshop document. It will be useful if the image on the top layer (the blend layer) has some blocks or large areas of white, black and neutral grey. You might want to construct a suitable image by opening an image and adding blocks of white, black and grey to it (as I have for purposes of this explanation). If you do this, make sure you flatten the image before

saving it for use as your blend layer when you are experimenting with blending modes. When you have created the two-layered image that you will experiment with, label the bottom layer as “base” and the top layer as “blend” to remind yourself which layer needs to be selected when you are changing the blend mode. Before worrying about what each blend mode does, practice changing the blend mode of the top layer by clicking on the double-headed arrow in the blend mode window.

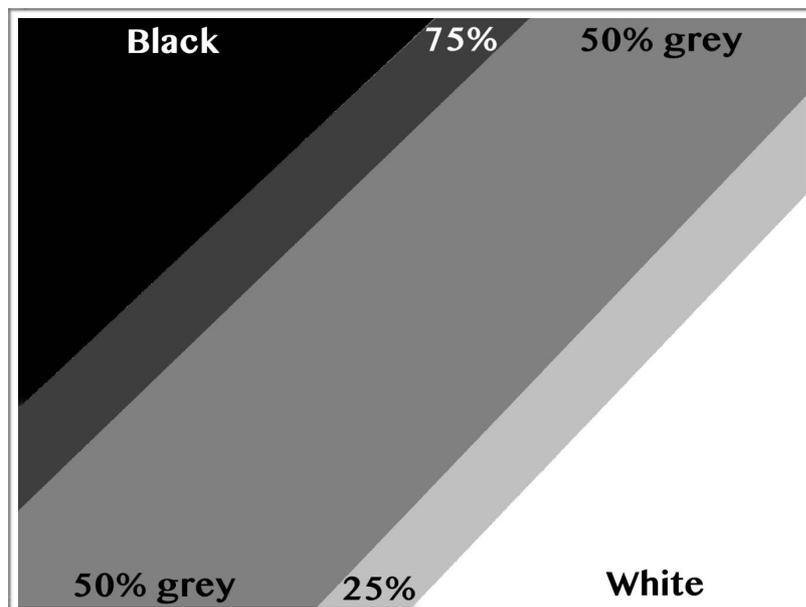
A fast way to cycle through the blend modes is to select the Move tool (or one of the selection tools, such as the rectangular marquee), then hold down the Shift key and press the + sign on the keyboard. Each time you press the + key the blend mode will change to the next one on the list. To move backwards through the list of blend modes press Shift and the minus key.

## Blending Two Different Images

The following examples are not meant to produce a pleasing result, they are simply to illustrate the effects of the blending modes. I will use these two images:

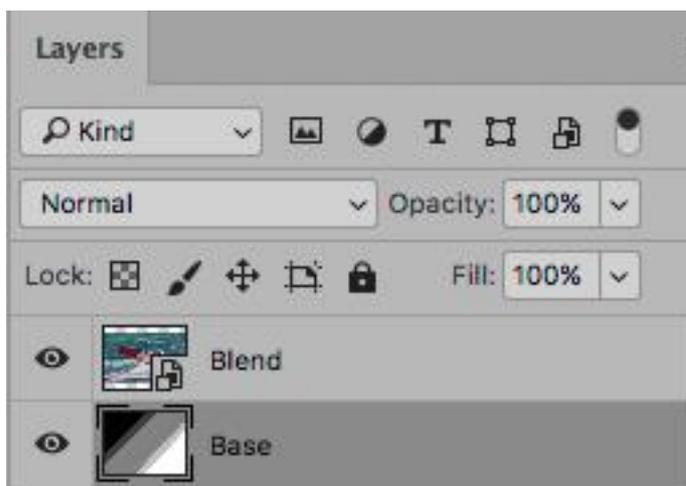


Blend layer



Base layer

The layers palette looks like this:



## NORMAL MODE

With the blend mode of the top layer set to Normal, what you see is simply the top layer. This is the default whenever you add a new layer regardless of whether it is an image, a fill layer or an adjustment layer. (Note: for this exercise the top layer does not cover all the base layer - so that you can always see parts of the grey areas on the base layer.)

If the opacity of the top layer is reduced it will become partially transparent, as in this example where the opacity is set to 75%.



## DISSOLVE MODE

If the opacity of the blend layer is 100% this mode has no effect - you just see the top image (as you would in the Normal mode). However, if you reduce the opacity of the blend layer, random pixels in the blend layer become transparent.

The opacity of the blend layer (0-100%) determines what percentage of pixels are kept in the blend layer. For example, if the opacity of the blend layer is set at 75% the result will be an image consisting of a random selection of 75% of the pixels from the blend layer and 25% of the pixels from the base layer. This is illustrated in the following image:

This mode has limited use in most photo editing but can be used for some special effects.



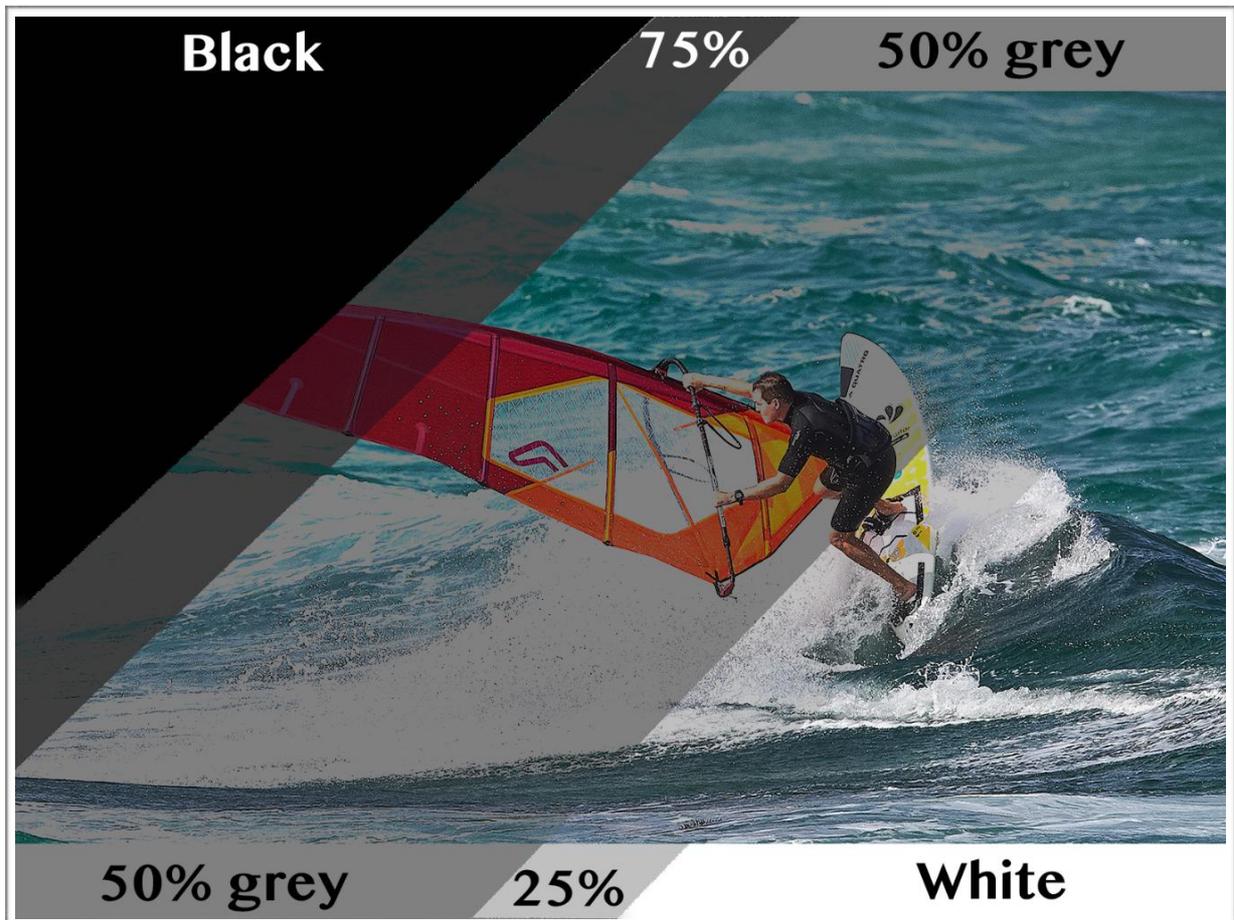
## THE WHITE-NEUTRAL MODES

The next group of blend modes are referred to as **darkening modes** because they all have the potential to make some of the pixels in the blended image darker than the pixels in the original image.

This group of blend modes is also referred to as **white neutral**. If the blend layer contains any white pixels they become *transparent* and reveal the corresponding pixels in the base layer.

## DARKEN MODE

This is one of the easiest blend modes to visualise. This mode compares the brightness of each pixel in the blend layer with the brightness of the corresponding pixel in the base layer and reveals the darker of each pair of pixels. The overall effect will be to darken the image, hence the name: 'darken' mode. Note that the blend layer pixels that correspond to the white pixels in the base layer are all darker than white - so they are all visible.



NOTE: The Darken mode compares the red, green and blue channels of the two layers separately. The darkest colour components of each of the compared pixels are selected - and this can produce some unusual colour changes.

### **Here is a practical application of the Darken mode.**

When you have completed all other adjustments and saved your image, flatten the layers and then duplicate this flattened layer. Apply sharpening (perhaps with Unsharp Mask) to the duplicate layer and observe whether or not you are getting light halos in places where there is an obvious transition from dark to light (such as the boundary between horizon and sky in a landscape). If the halos are obvious, change the blend mode of the sharpened layer to Darken and the halos should disappear.

## MULTIPLY MODE

This mode multiplies the colour of each base layer pixel by the colour of the corresponding blend layer pixel and produces darker colours everywhere except where the pixels in one of the layers are white. (The appendix shows the mathematics behind this mode - for those who are curious.

Any areas where there are white pixels in either layer you will simply reveal the pixels from the other layer. This is another 'white neutral' blend mode.

Multiplying any colour with black produces black; so if there are black pixels in *either* layer you will see them in the blended image.

Although the effect of Multiply is similar to the effect of Darken, Multiply produces smoother transitions and preserves more detail.

### Practical application - darkening the sky with Multiply blend mode:



Original



Duplicate image and change blend mode to Multiply. Adjust opacity to suit.

Unlike most layer blend modes, this one has a "real world" equivalent. If you imagine that the two layers were both images on transparent slides - the Multiply blend mode produces the same effect as putting the two slides together and holding them up to the light.

The Multiple blend mode can be a simple and useful way to intensify the colour and contrast in an image. Simply duplicate the image and apply the Multiple blend mode to the top layer. Then reduce the opacity of the blend layer until you have the desired effect.

## COLOUR BURN

This mode darkens and adds contrast to the image - more severely than the Multiply mode. It behaves much like the Burn tool in Photoshop. It produces highly saturated mid-tones and reduced highlights.

Any black pixels in either layer will appear as black in the blended image.

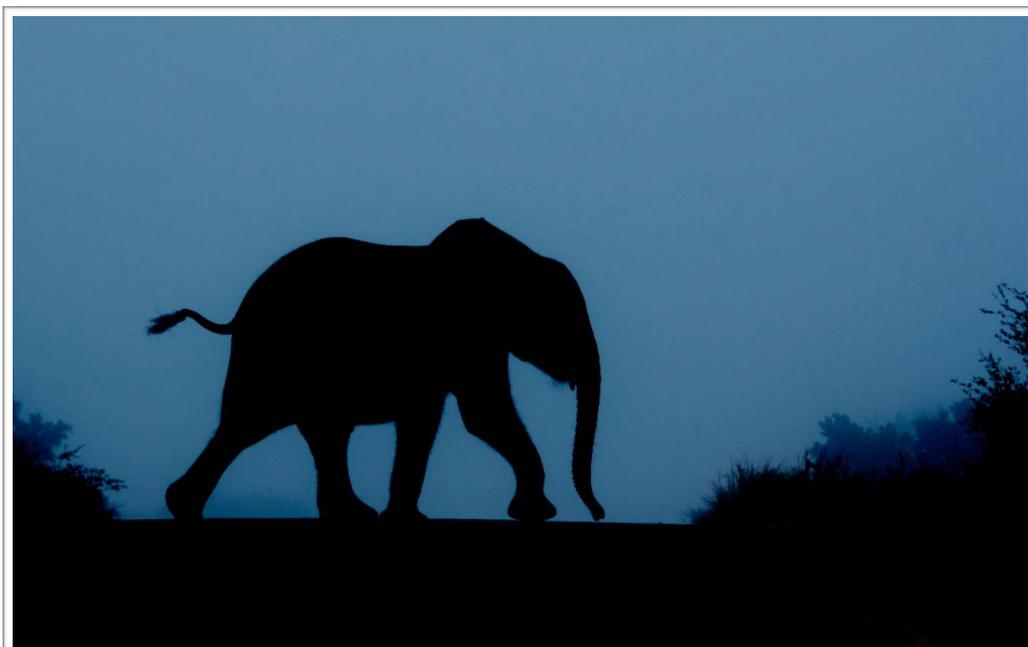
Any white pixels in the blend layer will reveal the pixels in the base layer (because this is another 'white neutral' blend mode).

Any white pixels in the base layer will be visible.

### Turning a foggy morning into a night silhouette:



Duplicate the image layer and change the blend mode to Colour Burn:



## LINEAR BURN

This mode gives similar contrast results to Colour Burn but does not produce such intense changes in colour.

Colour Burn darkens the base colour by increasing contrast, whereas Linear Burn darkens the base colour by decreasing the brightness.

Any white pixels in the blend layer will become transparent (it is a 'white neutral' blend mode). Any white pixels in the base layer will allow the corresponding pixels in the blend layer to be visible - major difference between this mode and Colour Burn.

Any black pixels in either layer will be black in the blended image.

The overall result is similar to Multiply, but slightly more intense.



Original



Duplicate image and change blend mode to Multiply.



Duplicate image and change blend mode to Linear Burn.

## DARKER COLOUR

This mode compares the total luminance (sum of the red, green and blue values) in each pixel of the two images and uses the values from whichever pixel is darker.

The main difference between this and the Darker mode is that the Darker mode compares the brightness of the individual colours in each pixel (not the total luminance) and can produce a colour that is different from either of the original two layers.

Any white pixels in the blending layer will be transparent (this is a ‘white neutral’ blend mode). Any white pixels in the the base layer will be replaced with the pixels in the blending layer. Any black pixels in either layer will be black in the blended image.

### Something to try.

Open an image and add a Black and White adjustment layer.

Change the blend mode of the adjustment layer to Darker Colour.

Adjust the sliders in the B&W dialogue box to selectively bring back some colours while leaving the rest of the image monochrome, as in this example.



## Combining two images with Darker Colour mode

If these two images are opened as layers in a Photoshop file and the blend mode of the top layer is changed to Darker Colour the result demonstrates how this mode operates.



Top (blend) layer



Base layer



## THE BLACK-NEUTRAL MODES

The next group of blending modes all lighten the image in various ways. All the blend modes in this group are referred to as *Black Neutral* because any black pixels will always be darker than the pixel to which they are being compared. The result is that black pixels in the blending layer become ‘transparent’.

**LIGHTEN** In this mode, each of the corresponding pixels in the two layers is compared and the lighter of the two is used as the final result. (It has the opposite effect to the Darken blend mode.) Because this mode looks at the red, green and blue components of each pixel separately it can produce some unusual colour shifts.

Any white pixels in either layer will always be lighter than the pixels to which they are being compared - so they will be visible in the blended image.

Black pixels in the base layer will change to whatever colour is in the corresponding blend layer pixels.

### Here is a practical application of the Lighten mode.

We saw above that the Darken mode can be useful if you are trying to reduce light halos in a sharpened image. If you duplicate your image twice and apply sharpening to both these duplicate layers you can set the blend mode of one layer to Lighten and the other to Darken. You can then adjust the opacities of these layers to independently adjust the light and dark halos produced by the sharpening.

### Another use for the Lighten blend mode:

I took two photographs of my house, one in normal daylight and one at night with the lights on in the house. I opened the two images as layers in Photoshop with the night image as the top (blend) layer. By changing the blend mode of the top layer to Lighten I can reveal . . .

## SCREEN

This mode has the opposite effect to the Multiply mode. It lightens the image and reduces contrast (whereas Multiply darkens the image and increases contrast).

It is similar to the Lighten mode but produces brighter images by removing more of the dark pixels.

Black in the blend layer has no effect (it simply allows the underlying image to show through). Hence this is referred to as a *Black Neutral* mode (as are all the other blending modes in this group).

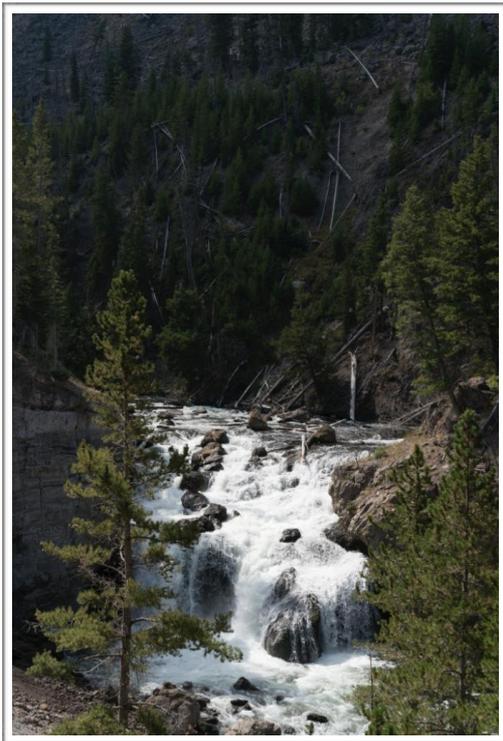
Black pixels in the base layer will allow the corresponding pixels in the blending layer to be visible.

Any pixel lighter than black in the blend layer lightens the pixel beneath it.

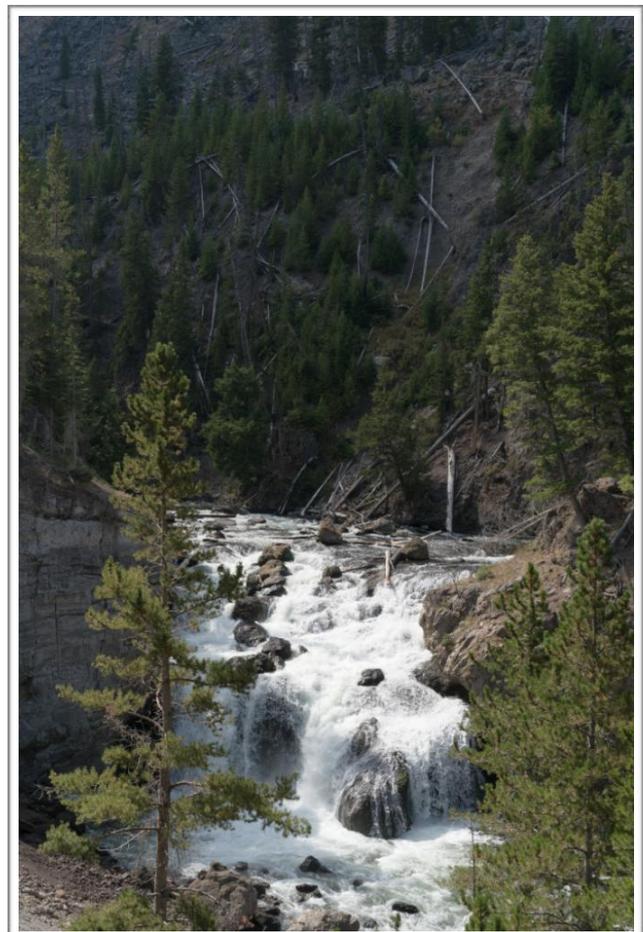
White pixels in both the blending layer and the base layer will be visible.

The "real world" equivalent of Screen mode is the effect you would get by projecting two images from different slide projectors onto the same screen (so that the images were aligned).

### An application of the Screen mode:



The exposure used for this image gave an appropriate result for the water but the rest of the image was under-exposed.



By duplicating the image and changing the blend mode to Screen I lightened the whole image and then used a luminosity mask to block that exposure change on the water.

## COLOUR DODGE

This mode brightens the base layer according to the brightness of the blend layer and usually makes the colours becoming more saturated. It typically results in saturated mid-tones and can give blown out highlights.

Where the blend layer is near white the result will be "washed out". White pixels in both the blending and base layers will be visible.

Black in the blending layer is 'transparent' as this is a *back-neutral* mode.

Black pixels in the base layer will be visible.

### **An application of the Colour Dodge blend mode:**

In the image in the previous example, I can add some directional light by doing the following:

Use the eye-dropper to sample the green on the tree at bottom left. This will place that green in the foreground colour square at the bottom off the tools palette.

Click on the foreground colour square to open the colour picker dialogue.

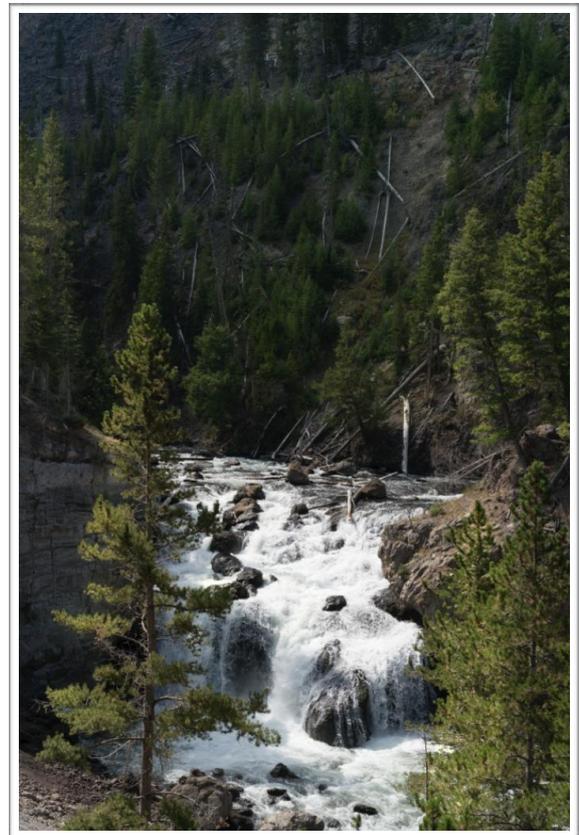
Set the Saturation to 100 and the Brightness to around 20. The brush will now have these settings.

Create a new layer above the image and set its blend mode to Colour Dodge.

Use a sift brush of an appropriate size to paint on the areas of the image that you want to lighten - in this case the lefthand side of the trees.



Original



Directional light added

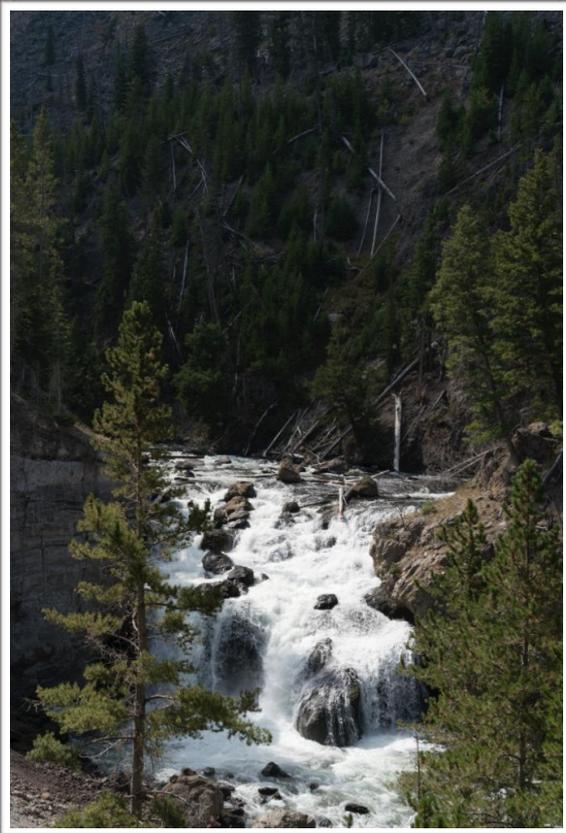
### Another application of the Colour Dodge blend mode:

Open image that is slightly under-exposed (such as the one in the previous example).

Duplicate the image.

With the duplicate layer selected, select Filter>Blur>Average from the Photoshop menu.

Change the blend mode of this blurred layer to Colour Dodge.



Original

Colour Dodge blend mode on Average Blur layer.



## **LINEAR DODGE (ADD)**

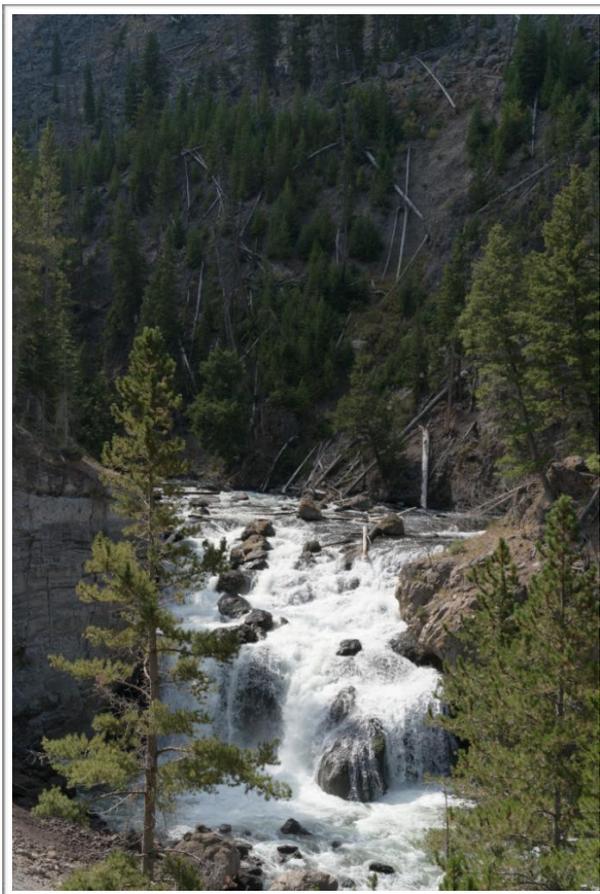
This mode gives similar results to Colour Dodge but does not produce such strong contrast or colour changes.

Any black pixels in the blend layer will become transparent (it is a *'black-neutral'* blend mode).

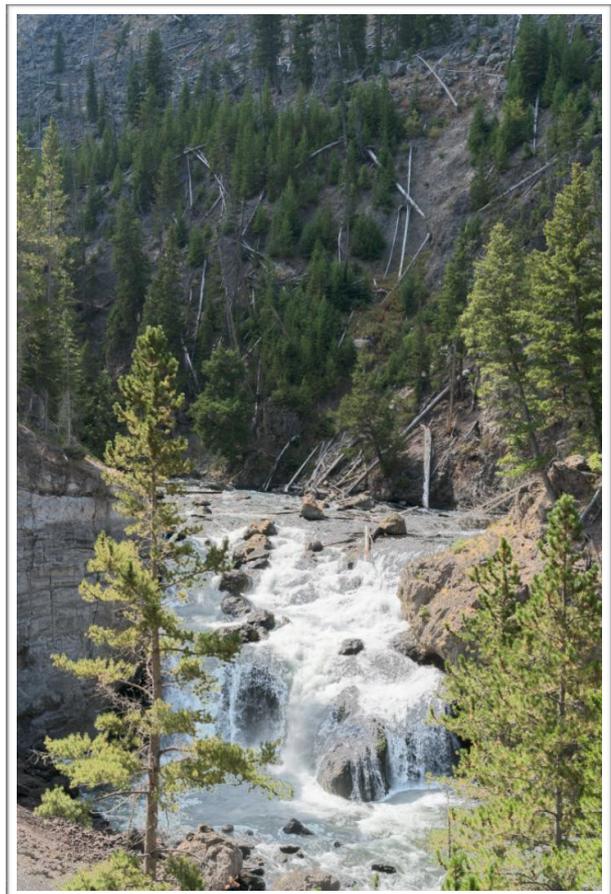
Any black pixels in the base layer will allow the corresponding pixels in the blend layer to be visible. (Different from Colour Dodge.)

Any white pixels in either layer will be white in the blended image.

The overall result is similar to Screen, but more intense.



Screen blend mode



Linear Dodge blend mode.

## **LIGHTER COLOUR**

This mode compares the total amount of light (sum of the red, green and blue values) in the corresponding pixels of the two images and uses the values from whichever pixel is lighter.

The main difference between this mode and the Lighter mode is that the Lighter mode compares the individual colours in each pixel (not the total amount of light) and can produce a colour that is different from either of the original two layers.

Black in the blending layer is transparent (it is a black neutral mode).

Black in the base layer will allow the corresponding pixels in the blending layer to be visible.

White pixels in both the base layer and the blending layer will be visible.

## THE GREY-NEUTRAL MODES

The next group of blending modes all change the contrast in the image. They are called grey neutral modes because any pixels in the blend layer that are 50% grey will become transparent and allow the corresponding pixels in the base layer to be visible. All these modes lighten the lightest pixels and darken the darkest pixels.

### OVERLAY

This blend mode has an effect that is similar to Multiply in the dark areas of the original image (areas darker than 50% grey) and similar to Screen in the light areas of the original image (areas lighter than 50% grey). The effects are not quite so severe as using Multiply or Screen because the neutral colour is 50% grey rather than black or white.

Pixels in either layer that are 50% grey will reveal the corresponding pixels in the other layer.

Pixels in the blend layer will be either darkened or lightened depending on whether they are darker or lighter than 50% grey.

All black and white pixels from the base layer will be visible.

#### Cutting through the fog:



Duplicate the image layer and change the blend mode to Overlay:



## SOFT LIGHT

This blend mode produces a similar effect to Overlay, but it is much more subtle.

When the blend layer pixel is white the underlying pixel will be lightened but not made pure white.

When the blend layer pixel is black the underlying pixel will be darkened but not made pure black.



Duplicate the image layer and change the blend mode to Soft Light to add a subtle amount of contrast:



### **Here is a very useful application of the Soft Light blend mode:**

If you want to do some subtle, non-destructive dodging and burning, add an empty layer above the image and fill it with 50% grey, then change the blend mode to Soft Light. Paint on this layer with a soft brush at low opacity (try 20% to start with). Painting in white (or grey that is lighter than 50%) will dodge, painting in black (or grey that is darker than 50%) will burn.

## HARD LIGHT

This mode uses a combination of Linear Dodge blending mode on the lighter pixels and Linear Burn blending mode on the darker pixels. The effect is more intense than the Overlay blend mode and generally gives a harsher (more contrasty) result.

If the blend pixel is white the resulting pixel will be white.

If the blend pixel is black the resulting pixel will be black.

Continuing with the elephant example, here is what you get when the image is duplicated and the blend mode of the duplicate layer is set to Hard Light.



You can get a very similar result by adding a Curves adjustment layer above the base image, adjusting the Curve to give a moderate level of contrast and changing the blend mode of the Curves layer to Hard Light:



## Producing a “glow” effect.

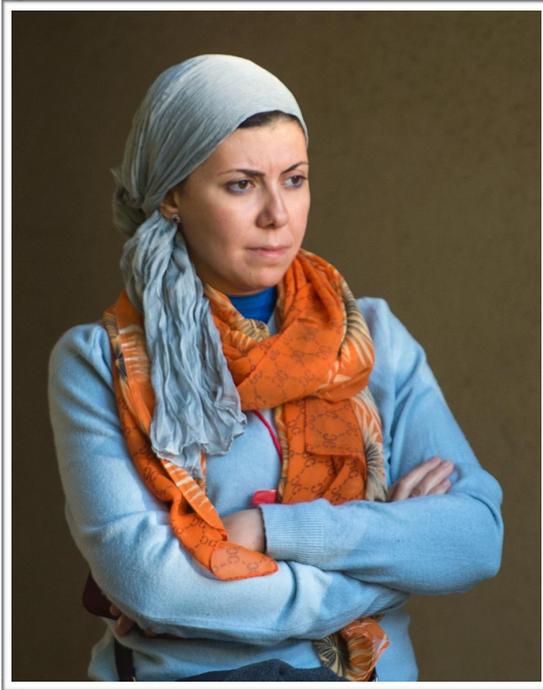
You can produce a glow effect in several ways, such as the following:

Open an image and duplicate it.

Change the blend mode of the duplicate layer to Overlay or Hard Light.

Blur the duplicate layer with Gaussian Blur (try a setting of 10-20).

Adjust the opacity of the blend layer.



Original



Overlay blend, 100% opacity



Hard Light blend, 80% opacity

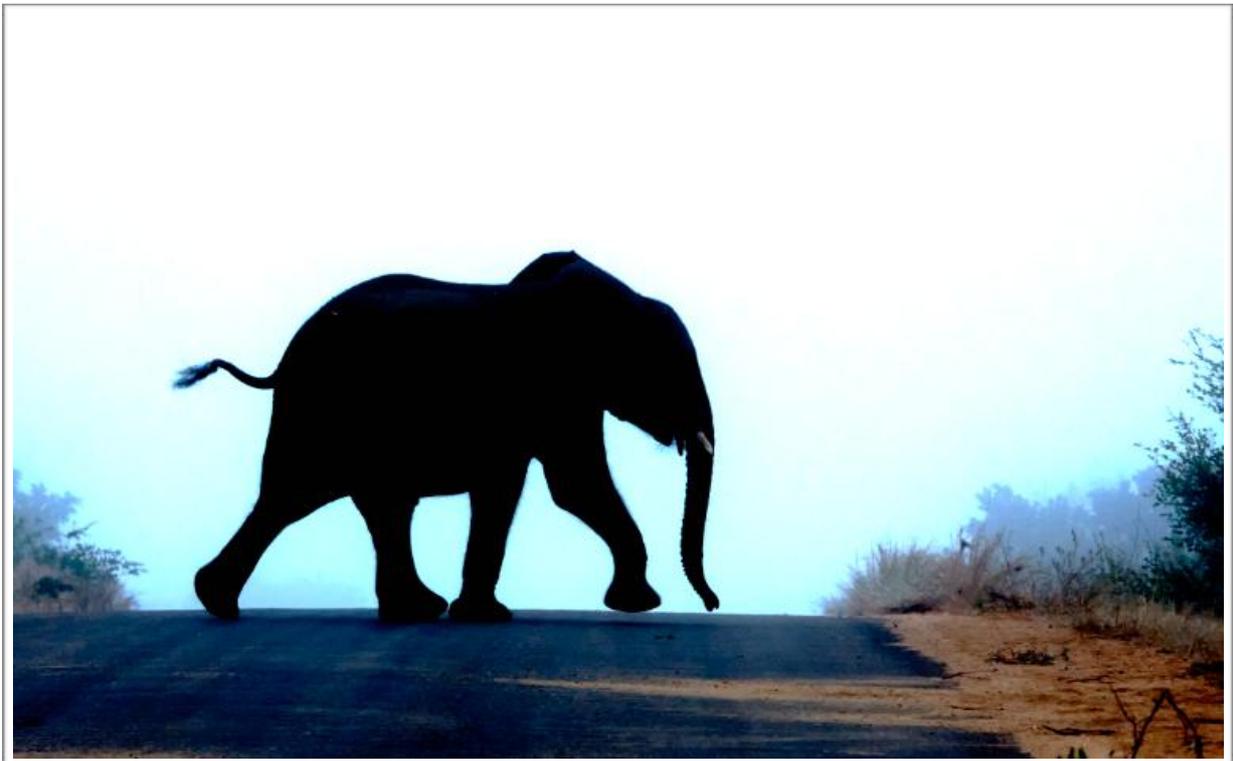
## VIVID LIGHT

This is a combination of Colour Dodge (when the blend pixel is lighter than 50% grey) and Colour Burn (where the blend pixel is darker than 50% grey).

The result is similar to the Hard Mix mode but with more noticeable colour changes.



Duplicate layer with Vivid Light blend mode.



Curves adjustment layer with Vivid Light blend mode.

Vivid Light can be a useful blend mode for intensifying the colours in some images, particularly those that do not have large areas that are very light or very dark. For example:



Original



Layer duplicated, blend mode changed to Vivid Light and opacity reduced to 25%.



Layer duplicated, blend mode changed to Soft Light with opacity at 100%.

## LINEAR LIGHT

This is a combination of Linear Dodge (when the blend pixel is lighter than 50% grey) and Linear Burn (when the blend pixel is darker than 50% grey). It is similar to Vivid Light except it changes the base layer brightness instead of the base layer contrast.

When an image is duplicated and the Linear Light blend mode is applied to the duplicate layer, the effect can be similar to applying the Dehaze Filter (via Filter>Camera Raw Filter), as shown here:



Original (a bit hazy).



Layer duplicated, blend mode changed to Linear Light and opacity reduced to 25%.



Dehaze filter applied to original image.

## PIN LIGHT

This is a combination of Lighten (when the blend pixel is lighter than 50% grey) and Darken (when the blend pixel is darker than 50% grey). It can produce some interesting blends of two different images.



Top (blend) layer



Base layer



## HARD MIX

This mode produces a posterized effect (similar to Image>Adjustments>Posterize). First it combines the pixels in the two layers using the Vivid Light mode, then it applies a "colour threshold" effect.

Pure black in the blend pixel produces a pure black result.

Pure white in the blend pixel produces a pure white result.

All other colours in the blend pixels produce pure colours in the result - red, green, blue, cyan, magenta and yellow.



Original



Duplicating the image and changing the blend mode of the duplicate layer to Hard Mix gives this.

The above example suggests that the Hard Mix blend mode might have limited use when editing photographs. However, here is something you can try:

### **Sharpening with the Hard Mix blend mode:**

Open an image and duplicate the background layer.

Change the blend mode of the duplicate layer to Hard Mix.

Apply a Gaussian Blur of about 4 to the duplicate layer.

Reduce the Opacity of the duplicate layer to about 30%.

Reduce the Fill Opacity on the duplicate layer to about 40%.

You should get a detailed image without sharpening halos.



Original



Sharpened as described above.

## THE COMPARISON MODES

### DIFFERENCE

This mode compares the colour information in each channel and subtracts either the blend colour from the base colour or the base colour from the blend colour, depending on which has the greater brightness value. When two pixels are identical the result is black (signifying no difference).

When the pixels are different the result is a colour that gets closer to white as the difference increases.

White on the blend layer inverts the colours beneath it.

Black on the blend layer does not change the underlying pixels.

The Difference blend mode can be a useful way to align two images - for example, when you take two different exposures to produce a HDR image.

Here are two images that have approximately the same composition but different exposures:



If I open these images as layers in Photoshop (with the lighter image on the top layer) and then change the blend mode of the top layer to Difference I can use the Move tool to shift the top layer in an attempt to align the two images. As the images get near to alignment I will see an 'embossed/engraved' image like this:

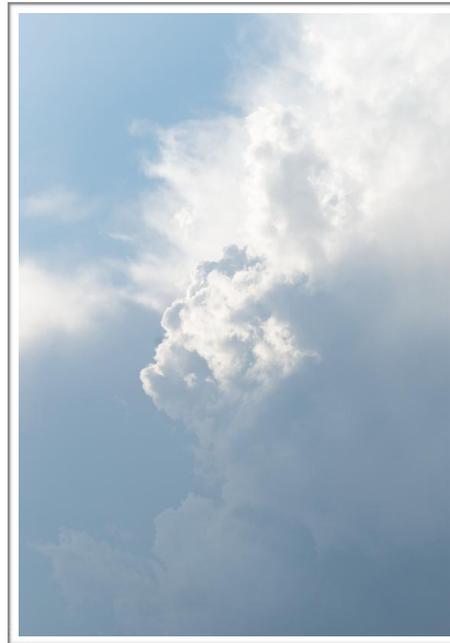
If the images aligned perfectly, the screen would be all black.



The Difference mode can be useful if you are trying to create a surreal effect in a composite image. For example:



**Base layer**



**Blend layer**

When the Difference blend mode is used on the blend layer, the result is:



## EXCLUSION

This mode produces similar results to the Difference mode, except with lower contrast. Mid-grey in the blend layer leaves mid-grey in the underlying layer at grey (rather than making it black).

The main use of the Exclusion mode is for achieving special effects. However, it can also be used for aligning images. Using the same example that was used for the Difference mode, as these two images approach alignment the result is again an ‘embossed/engraved’ appearance:



If the two images were perfectly aligned the screen would **not** be black (as it is for the Difference blend mode). This is shown in the following example.



When the image is duplicated and the top layer blend mode is changed to Exclusion, the parts of the image that were originally white become dark (almost black). However, areas of the original that were black remain black. Because this mode is effecting the RGB channels separately there can be some strange colour changes.

As an experiment, I used the “Cloud” image from the Difference blend mode example in a layer above the result of the Exclusion blend mode and set the blend mode of the cloud layer to Difference. This was the result:

This result illustrates that you can have multiple layers with different blend modes and that, although the results of blending images can be somewhat unpredictable, a little experimenting can provide inspiration for some creative effects.



## **SUBTRACT**

The Subtract blend mode compares the colour information in each channel and subtracts the blend colour from the base colour. If this subtraction gives zero (the colours are the same) or a negative value (the blend colour is brighter than the base colour) the result is changed to black.

Blacks in the blend layer do not change any colour in the base layer.



## DIVIDE

Takes the colour information in each channel and divides the blend colour by the base colour.

Whites in the blend layer do not change any colours.

Similar colours in the two layers produce white (with the exception of black which stays black).

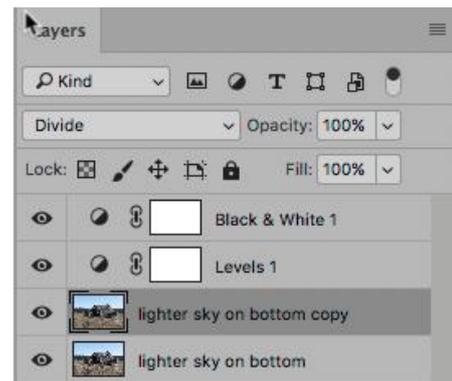
### Changing an image to a sketch:

Open an image, duplicate it and change the blend mode to Divide.

Apply Gaussian Blur (at a low radius value, say, 10) to the duplicate layer.

Apply Levels adjustment to darken.

Add a Black and White adjustment layer to remove colours and adjust sliders to enhance the lines you want to emphasize.



## THE COLOUR MODES

### HUE

You can think of hue as the "pure" form of colour, disregarding its lightness/darkness (luminosity) or how vivid it is (saturation).

This mode keeps the hue values from the pixels in the blending layer and combines that with the saturation and luminosity values of the base layer. It basically gives you the image from the base layer with the colours of the blend layer.

Any pixels in the blend layer that are pure black, pure white or a shade of grey will produce greyscale values in the underlying pixels. So, this is one way of converting a colour image into a monochrome image. Just put a fill layer of any shade of grey above the image and change the blend mode to Hue. (You will get the same result no matter what shade of grey you use for the blend layer.)



This mode cannot introduce colour into an area (of the base layer) that did not already contain colour. Nor can it change the brightness of the underlying image. This is illustrated in the following image - created by adding a green fill layer (with Hue blend mode). Areas of low saturation or low luminosity 'pick up' very little of the green.



## SATURATION

This mode uses the saturation values from the pixels in the blending layer and combines this with the hue and luminosity values from the underlying layer. Any pixels in the blend layer that are pure black, pure white or 50% grey will produce greyscale values in the underlying pixels.

Note: Saturation determines how much colour shows in an image (how vivid it is). If there is no saturation then there is no colour - that's why "desaturation" produces a greyscale image. When a colour is completely saturated it is almost fluorescent.

The Saturation blend mode produces exactly the same result as the Hue mode when the blend layer is filled with any shade of grey. However, when the blend layer is a colour, the results are very different illustrated here using the same green blend layer that was used for the previous example:



### Something to try with the Saturation blend mode:

Open an image.

Add a new empty layer above the image and change its blending mode to saturation.

Paint with grey on areas of the image that you want to desaturate.

## COLOUR

This mode uses the Hue and Saturation values of the blend layer pixels and combines them with the luminance values of the base layer pixels. The result is similar to using the Hue blending mode except the Colour mode can introduce colour into areas of the underlying image that did not contain colour.

Any pixels in the blend layer that are pure black, pure white or 50% grey will produce greyscale values in the underlying pixels.

This blend mode can be used to colourise greyscale images. Just add a new layer in Colour blend mode and paint in the required colour.



You can also use this blend mode to produce tinted images. Just add a colour fill layer above an image and adjust the colour to whatever you want. For example:



## LUMINOSITY

This mode uses the luminance values of the blending layer pixels and combines them with the colour (hue and saturation) values of the underlying pixels.

This mode is very useful for preventing colour changes when you apply adjustments such as Levels or Curves, as in this example:



Original image

Curves adjustment layer applied to give a little more contrast:



Normal blend mode.



Luminosity blend mode.

Notice the colour difference on the bird.

When sharpening an image, if you set the blend mode of the sharpening layer to Luminosity it can help to reduce coloured halos.

## **EIGHT SPECIAL BLEND MODES**

There are two ways to change the opacity of a blend layer. As with any layer in Photoshop you can adjust the Opacity and this makes the whole layer partially transparent. You can also adjust the Fill Opacity. For most blend modes, these two adjustments produce exactly the same effect. So, for example, setting the Opacity of the blend layer to 60% will give the same result as setting the Fill to 60%.

However, for the following eight blend modes the Opacity and Fill adjustments produce different effects: Colour Burn, Colour Dodge, Linear Burn, Linear Dodge, Vivid Light, Linear Light, Hard Mix and Difference. This is worth keeping in mind when you are experimenting with blend modes.

### **Some exercises for you to try.**

The best way to get an understanding of blending modes and how to use them when editing images is to experiment. And don't forget to remain curious! Experiment, observe the results, and think about why they are happening. While you are experimenting, make some notes and when you find a technique that looks promising or give results you like, try it on a range of different images.

Some things to try:

1. Open two different images as layers in Photoshop and cycle through the blending modes on the top layer while you observe the changes.
2. Swap the order of the two image layers and repeat (1). Notice that for some blending modes the order of the layers makes a difference and for some other blending modes it does not.
3. Open an image in Photoshop and duplicate the base layer. Cycle through the blending modes on the top layer while you observe the changes.
4. Open an image in Photoshop and put a Black and White adjustment layer on top of the base layer. Cycle through the blending modes on the adjustment layer while you observe the changes.
5. Repeat (4) with other types of adjustment layer. Note that for some types of adjustment layers the blend mode makes no difference to the appearance of the images but in other cases it does.

These notes are just a brief introduction to blending modes. If you would like to ask questions about any of the information in these notes, or make suggestions for improving them please email me.

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