

## INTRODUCTION TO PHOTOSHOP LAYERS

**Layers are one of the most important tools for working in Photoshop. If you are not using layers, you are missing out on most of the creative power available in Photoshop.**

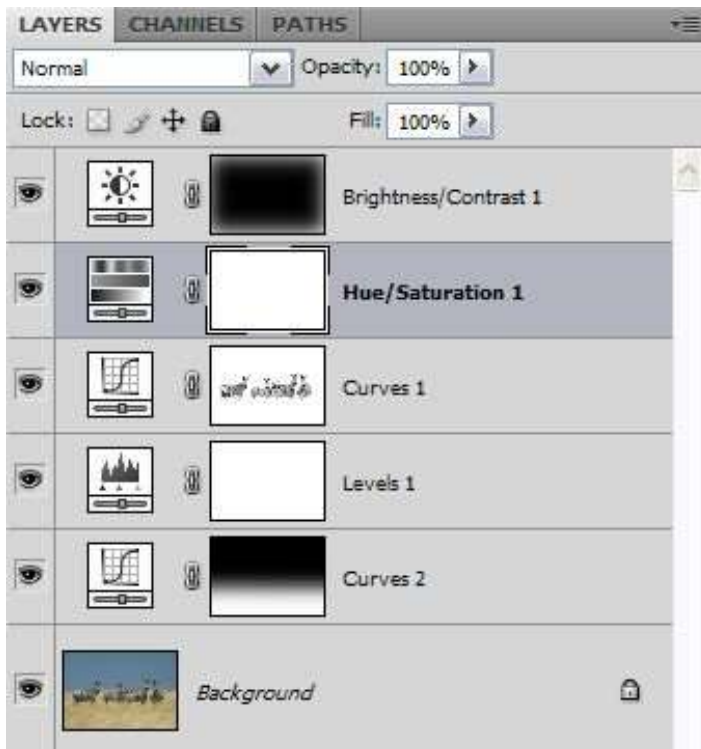
### WHAT ARE LAYERS?

Layers are a way of making Local or Selective adjustments to an image. Layers are also a way of applying Global adjustments to the whole of an image non-destructively.

Local or Selective adjustments are changes made to a part of the image only, whereas Global changes apply to the whole of the image. Without layers, you are pretty much restricted to global changes to your image, apart from things like patching and cloning. Selective adjustments are applied to the image via Layers, Masks and Opacity.

Layers also allow us to control how adjustments are applied to the base image. We will explain this later in the Blending Modes section.

Layers are separate from the image and sit over the top of the base image (background). Imagine a clear sheet of plastic placed over your image containing instructions on how each pixel below is to be treated, in a similar way to a filter placed over the lens of your camera.



**Left:** The Layers palette in Photoshop

Layers contain sets of instructions that tell Photoshop how to alter the appearance of the underlying image information.

Layers can be:

A **duplicate** of the original layer – used to apply artistic filters or other treatments to the entire image (with reduced transparency and/or altered blending).

An **adjustment layer** - a layer that is used for adjustments to parts of an image, (levels, curves, saturation etc.).

Or a **fill layer** that is used to apply a pattern, colour, or texture to an image.

A layer comprises three components:

1. The **layer** itself containing the instructions (adjustment, filter etc.),
2. A **layer mask** that determines where the adjustment is to be applied, and
3. A **blending mode** that determine how the adjustment is to be applied.

The blending mode includes a set of three options:

1. The blending mode,
2. the transparency of the layer, and
3. the Layer Styles.

We will cover all of these in detail later.

**Tip:** Never, ever apply any adjustments to your base image. Always apply adjustments with adjustment layers. Why? successive adjustments to the base image can quickly degrade the image data so that details are lost, and colours pushed out of gamut. By using layers, you can see the cumulative effect of your adjustments and make fine adjustments accordingly to maintain your image quality and keep it in gamut.

## WHY ARE LAYERS USED?

Layers are a **non-destructive** way of applying image adjustments as they do not affect the original pixel values of the background layer, unless the image is flattened.

Layers can be adjusted repeatedly until (and if) the image is flattened (at which time the layer information is combined with the base image).

Layers allow us to apply image adjustments selectively and reversibly to the base image by means of the layer mask, blending modes and opacity.

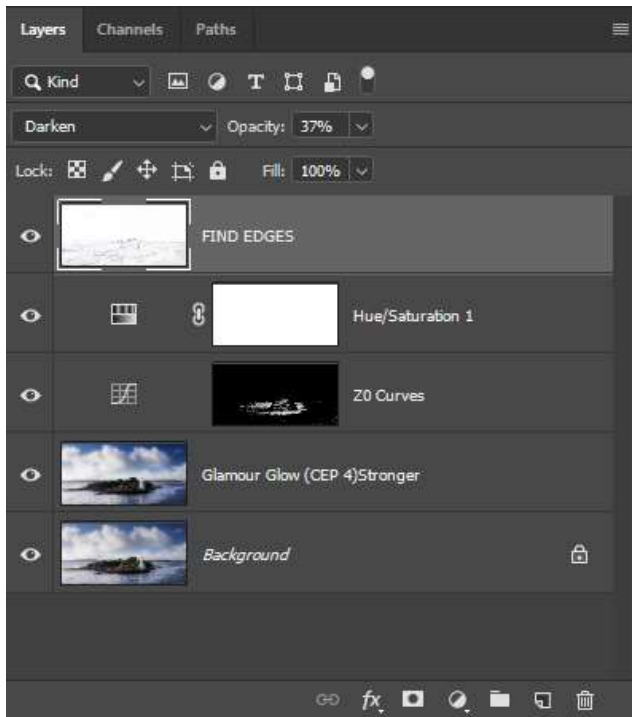
Layers can be built up in multiples to allow the widest possible range of creative input into the image.

## HOW DO WE APPLY LAYERS?

Firstly, ensure you have the layers palette visible in Photoshop by going to "**Window**" on the menu bar and checking that the "**Layers**" palette is ticked. This ensures that the Layers palette is visible on the right hand side toolbar.

Layers are applied to an image in either of two ways:

1. By going to the menu bar and selecting: Layer> Duplicate layer, or Layer>New Adjustment layer, or Layer>New Fill layer.
2. More simply by going to the Layers Palette and clicking on the half black and half white circle icon. This opens a menu bar that lists options for fill and adjustment layers. Alternatively, go to the Adjustments Palette and choose the type of layer you want to use.

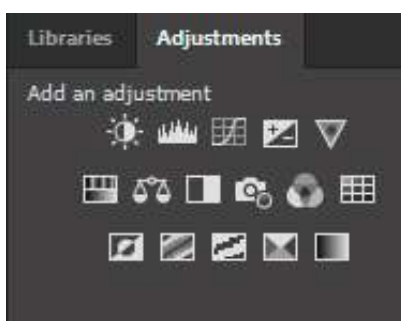


**Left:** *The Layers Palette.*

To create a duplicate of the background (your base image), simply click on the layer shown inside the layers palette (a thumbnail with an eye symbol to the left and called "background") and drag it to the square icon at the bottom with a folded over corner.

This creates a duplicate of your base image, ready to apply a special or artistic filter. When you create a new adjustment layer, you will choose the type of adjustment you want to make: **Levels, Curves, Hue Saturation etc.**

By clicking on the type of layer you want, a menu box opens to allow you to make that adjustment. Let's say we are going to use Curves to alter the tone mapping of the image. When you select this adjustment the curves menu opens and you can make an adjustment, with the image being updated in real time to allow you to see the effect.



**Left:** *The Adjustments Palette.*

Almost all of the types of adjustment layers are shown with icons in the Adjustments Palette. (but not the Solid colour Fill option, inexplicably – this has to be selected from the Layers Palette).

To create a new adjustment layer, simply click on the icon (hover your mouse over to see a description) for the type of adjustment you want to make. A new layer complete with a mask is created.

For a description of the types of Adjustment layers, see below on page 5.

## THE ELEMENTS OF THE LAYERS PALETTE

Looking at the Layers Palette in the example below, you can see a series of layers sitting above the base or Background layer (the original image).

Next to the adjustment type icon will be a white rectangle. This is the **Layer Mask**. On the right-hand side of the layer mask is the name of the adjustment layer. You can rename the layer by double clicking on the default name and typing in a name of your choice.

On the left of the layer icon is an eye symbol. When the eye is visible, the layer is turned on. To turn it off, simply click on the eye and it disappears. By turning the layer on and off you can see the effect of your adjustment.

**Left:** The Layers Palette in detail, with the Adjustment Palette above.

The elements of the layers Palette are:

- The **Blending Mode** panel – here set to Normal.
- The **Opacity Panel** – here set to 100%.
- Adjustment layer** – this is a Curves Adjustment layer.
- The **Layer Mask** – White is 100% applied, black makes the effect transparent.
- A **Layer Mask** created from a selection
- The Image Layer – always called the **Background** layer

**Layer Visibility** can be turned on and off by clicking on the eye icon at the left of the layer.

To check and change the properties of an adjustment layer, click on the layer, and make sure the eye symbol is visible. Now look at the top of the layers palette. You will see directly under the layers tab a drop down box. This is the **Blending Mode** options box. By default, when you create a new layer, it is set to “**Normal**” blend mode. By clicking on the downward facing arrow on the right-hand side of this box you will see all of the blending options to choose from. We will cover these shortly.

At the right-hand side of the blending mode options box is the **Opacity** options box. By default, a new layer is set to 100% opacity. To change the opacity, click on the arrow at the right-hand

side of the box and either type in a new value, or drag the slider that appears to a new value. Remember that 0% opacity means it is transparent and 100% means the layer is totally opaque and the adjustment is at full strength.

By right mouse clicking (or double clicking) on the layer you are working on, a new menu pops up with a number of options. Click on the **Blending Options** to access the **Layer Styles and Advanced Blending Modes** menu box. This is where blending based on luminosity ranges can be made. More on this later.

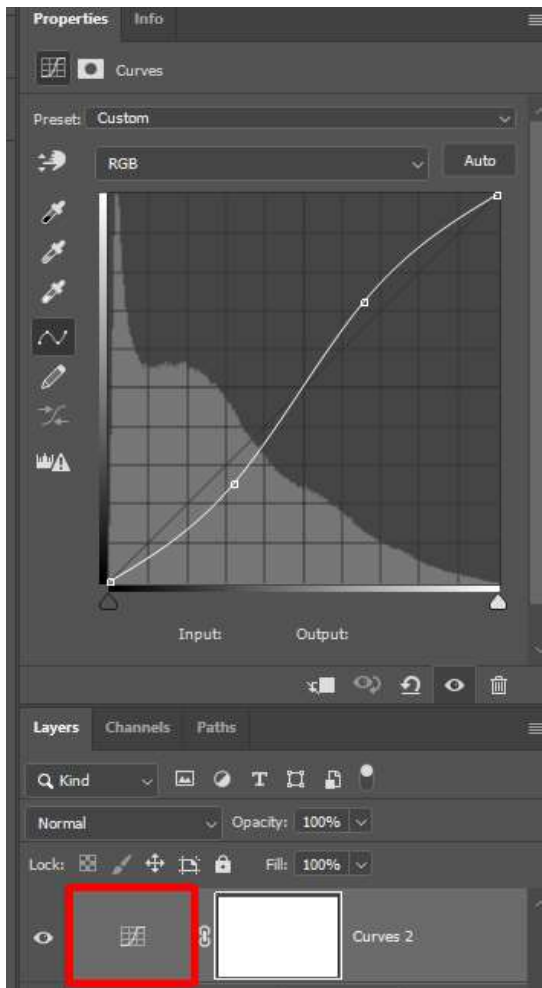
## TYPES OF ADJUSTMENT LAYERS

Photoshop has 16 standard adjustment layer types, found on the **Adjustments Panel**, plus the **Colour Fill** layer that can only be accessed from the bottom of the Layers Palette.

The adjustment layers are, in order:

1. Brightness/Contrast,
2. Levels,
3. Curves,
4. Exposure,
5. Vibrance,
6. Hue/Saturation,
7. Colour Balance,
8. Black and White,
9. Photo Filter,
10. Channel Mixer,
11. Colour Lookup,
12. Invert,
13. Posterise,
14. Threshold,
15. Selective Colour and
16. Gradient map.

Of these, the most often used are: Brightness/Contrast, Levels, Curves, Hue/Saturation, Colour Balance and Black and White.



It should be noted that Curves adjustment layers offer much better control than Brightness/Contrast and Levels, so our recommendation is to use Curves adjustments for any brightness and contrast adjustments. Using Curves allows you to alter the rate of change in luminosity as well as the amount of change. You can't do this with levels or Brightness/Contrast.

The other types of adjustment layers will be used rarely or not at all, depending on what you are looking to achieve.

## MAKING ADJUSTMENTS USING THE ADJUSTMENT LAYERS

Creating an adjustment layer does not make any change to the image below. The new layer is created using the "Normal" Blend Mode, 100% Opacity and a mask filled with white.

To make an adjustment, select the adjustment and in the Properties panel, carry out the adjustment using the tools provided.

**Left:** The Layers panel with a Curves adjustment selected. The adjustment is carried out in the properties panel – here making an adjustment to increase contrast with an "S" curve.

Each type of adjustment layer has different controls, depending on the function of the adjustment. All adjustments made are updated in real time and are visible in the photo as you make them.

To see the effect of any adjustment, click on the eye symbol at the left of the adjustment layer or the eye symbol at the bottom of the Properties Panel to turn it off and on.

## FINE TUNING ADJUSTMENT LAYERS

If you want to make a further adjustment to any adjustment layer, simply click on the adjustment layer icon to reopen the Properties Panel and carry out the further adjustments. This is repeatable as often as you want.

Fine adjustments to the effect of any adjustment can be made by reducing the Opacity of the adjustment. This can sometimes be easier than making a very minor adjustment to the properties of the adjustment.

## DUPLICATING THE BACKGROUND LAYER

To apply so called "artistic" filters, either from Photoshop's filters list, or via a plug-in like Topaz Studio, we make a copy of the Background layer and apply the filter to the copy. This allows us to reduce Opacity of the filter, change the Blending mode and apply a mask, if needed.

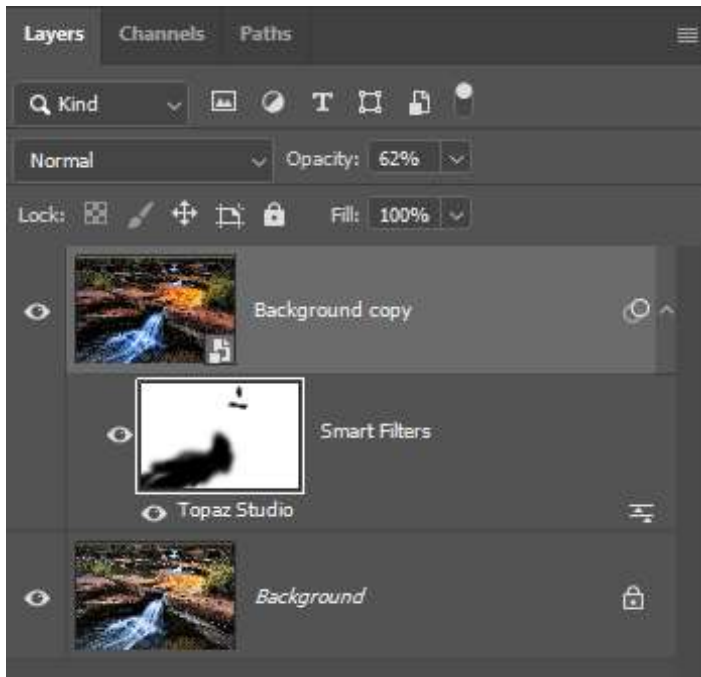
To make a duplicate of the background layer, click on the layer and drag it to the icon at the bottom of the Layers Palette that looks like a turned over page – see below. A duplicate of the background is created.



If you have made a duplicate layer and applied an "Artistic" filter, the duplicate layer does not automatically add a mask. To add a layer mask to a layer, click on the rectangle icon with a black circle inside at the bottom of the layers Palette. This will add a Mask filled with White to the selected layer, making the effect applied to the whole image.

With the filter applied to the duplicate layer, and with a mask applied, you can fine tune the effect of this layer by adjusting the Opacity of the layer, changing the Blending mode, and painting onto the mask with either black or white.

For applying "Artistic" filters, you now have the option of converting the layer to a "**Smart Object**". If you want to take advantage of this option you must first duplicate the background layer (as above) and then by right mouse clicking on the new layer select "**Convert to Smart Object**" Before you apply the filter. The filter then appears as a separate item below the background copy layer. This can be re-edited by double clicking on the name of the filter and then making the adjustment required before clicking on OK. Note that the layer mask now appears under the layer and the type of filter as a separate item below that again.



**Left:** A duplicate of the background layer converted to a **Smart Object**. A **Topaz Studio** filter has been applied to this layer. The Mask now sits below the layer with the filter name underneath.

To access the filter again, double click on the filter name (Topaz Studio), make the adjustments, and then click OK to process the changes.

In this example, the Opacity of the filter is reduced to 62% and a mask applied to restrict the filter to parts of the image only.

**Tip:** When using an “Artistic” filter, always duplicate the background and apply the filter to the background copy layer. Then reduce the transparency of this layer until the effect is reduced in strength sufficiently to be useful and not overpower your image.

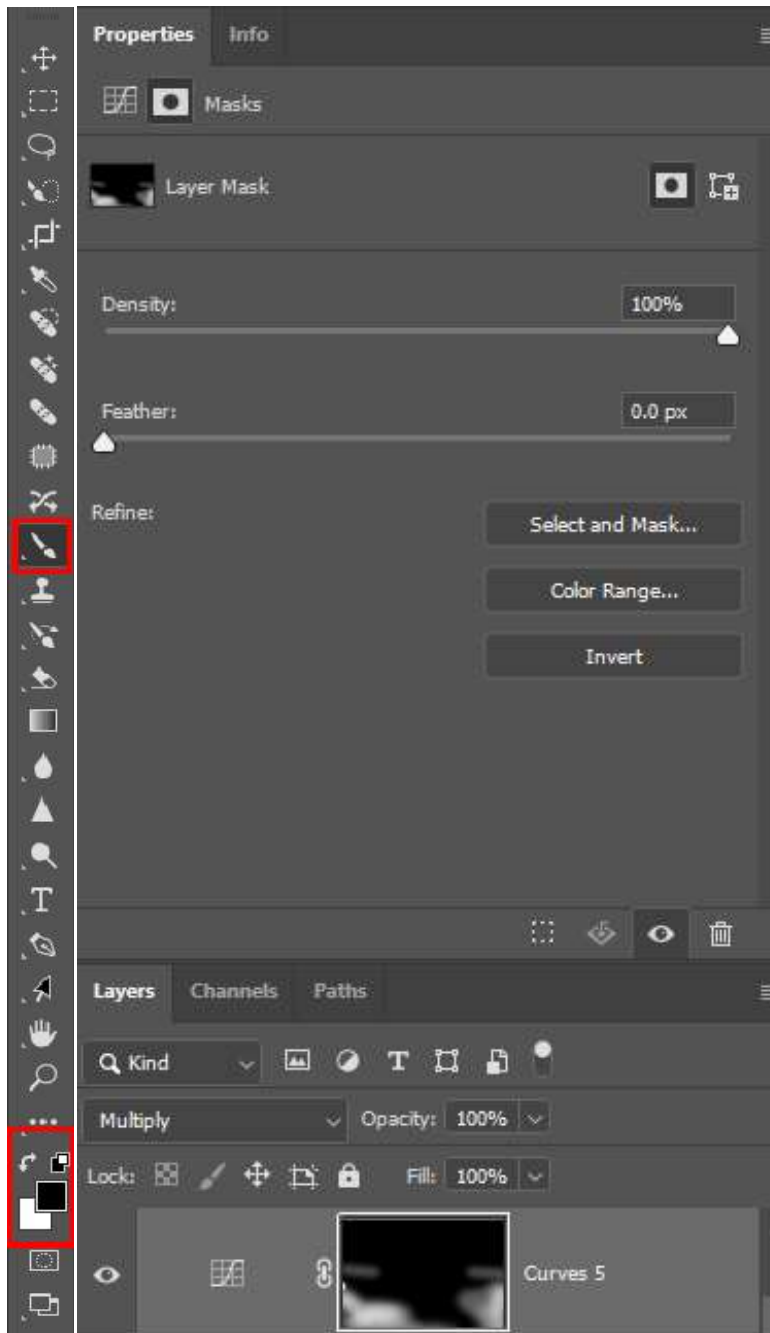
## WORKING WITH THE LAYER MASK.

By default, when you create a new Adjustment or fill layer, a mask is applied that allows the adjustment to apply to the whole of the image. **White sections of the mask mean that the adjustment is applied to that part of the image. Black parts of the mask mean that adjustments do not apply to that part of the image. “White reveals, Black conceals”** is an easy way to remember what the mask does.

So, if we want to be selective about where this adjustment is applied to the base image, we need to change the mask. There are several ways to change the mask, but first the layer must be visible (eye open) and next you must click once on the layer mask icon (white rectangle) to select this as the area you are going to work on.

Once the layer mask is selected you will see a second outline around the icon indicating this is where you are working.





**Left:** An adjustment layer with the mask selected (White rectangle around the mask icon).

**Far Left:** The Photoshop toolbar.

The simplest and most effective way to change the mask is to **paint** on it with either black or white (these are the only options). To paint on the mask, first go to the tools palette on the left of the desktop and select the paintbrush tool. At the top of the workspace, under the main menu you will see a contextual menu that changes with each tool selected. Make sure you have a soft edged brush selected from the options available (not shown here).

Make sure that the foreground and background colours are set to black and white. You will see a black square and a white square. The one on top is the active one you will be using. If you don't have black and white visible, click on the small black and white icon directly above the colours to reset to the default colours, or simply type "D" to reset them. To change from black to white and back again, click on the two-ended arrow above the foreground/background box (or type "X" to swap between them).

The properties panel above the layers changes to the mask properties. Here you can invert the mask, feather any selection applied, or reduce or increase the density of anything painted onto the mask. Painting with black removes the effect completely from the area painted, however painting with a brush with low opacity will show as grey on the mask – indicating that the effect is partly hidden.



**Above:** The Paintbrush tool contextual menu under the main menu. This menu changes for each different tool selected.

**Tip:** When you want to apply an adjustment layer to a small part of the image only, first convert the mask to black by clicking on the mask and then holding down the **Control** key and then the **Delete** key. This converts the mask to black. Alternatively, select black and choose the paint

bucket, then click anywhere on the image to fill the mask with black (make the adjustment transparent). Then choose a brush and select white to paint in the effect. Simple !

To paint on the mask, first zoom in on your image and then paint on the image areas you want to include or exclude from the adjustment. Remember to ensure the layer mask icon is still selected. If your image suddenly changes to white or black as you paint, STOP, go to the history tab, and click on the last step before you started painting, or go to *Edit>Undo* on the main menu bar. Then click on the Layer mask and start again.

**Tip:** To quickly change the size of the paintbrush, simply use the square bracket keys on the keyboard "[" makes the brush smaller and "]" makes it larger. If you only see a crosshair on your image, click on the "**Caps Lock**" key to change to the round cursor to easily see where you are working.

If you accidentally paint onto an area you don't want, simply reverse the colour ("X"), and paint it back in or out. This is completely reversible and re editable.

A further way to modify the mask is to apply a **Gradient Fill** to the mask using the gradient fill tool, available from the main toolbar (It looks like a rectangle with a graduated fill. From the contextual menu you have several options for the type of fill and direction. Make sure you are working with Foreground to Background colours and then choose the type of gradient. Apply the gradient by clicking and dragging across the image area in the direction you want the gradient to be applied. This can be further refined with the paintbrush as above.

**Tip:** Another easy way to see where you are working on your image is to make the adjustment much stronger than you really want, then as you paint in or out on the mask, you can easily see where the adjustment is being applied. When complete, simply double click on the adjustment layer icon and fine tune the adjustment. Alternatively, reduce the opacity.

**Tip:** To make an adjustment layer apply only to the immediate layer below only, right mouse click on the layer and choose "create clipping mask" from the drop down menu. A small downward pointing arrow appears next to the layer thumbnail to show that it applies to the layer below only.

## APPLYING SELECTIONS TO MASKS

An alternative way to modify the layer mask is to make a **selection** on the image before you create the adjustment layer. The selection is automatically applied to the layer mask when the new layer is created. If you have already created the new adjustment layer you can delete the existing layer mask by right mouse clicking on the layer mask and choosing "**Delete Layer Mask.**" Next make your selection (remembering to feather as required) and then, making sure the correct layer is active (highlighted) on the layers palette, then click on the "Create Layer Mask" icon on the bottom of the layers palette (this looks like a white circle inside a rectangle). The selected area becomes the white part of the mask. You can then modify the mask with the paintbrush tool as above.

Layer masks can be worked over repeatedly with the paintbrush and/or gradient fill tools. This process is completely reversible and non-destructive. Layer masks can be further refined by using the Levels tools, curves tools or the blur filter. Refer to the other tutorials on this site for more information.

Making selections is covered in depth in a separate document "**Making Selections in Photoshop**"

## WORKING WITH THE BLEND MODES

The following blend modes are available from the drop down menu at the top of the layers palette. These are divided into six groups: **The Independent Modes, The Darkening Modes, The**

## **Lightening Modes, The Light or Contrast Modes, The invert, or Comparative Modes and the HSL Modes.**

The following information is extracted from the Help menu in Photoshop:

### **Independent Modes:**

**Normal:** Edits or paints each pixel to make it the result colour. This is the default mode.

**Dissolve:** Edits or paints each pixel to make it the result colour. However, the result colour is a random replacement of the pixels with the base colour or the blend colour, depending on the opacity at any pixel location.

### **Darken Modes:**

**Darken:** Looks at the colour information in each channel and selects the base or blend colour—whichever is darker—as the result colour. Pixels lighter than the blend colour are replaced, and pixels darker than the blend colour do not change.

**Multiply:** Looks at the colour information in each channel and multiplies the base colour by the blend colour. The result colour is always a darker colour. Multiplying any colour with black produces black. Multiplying any colour with white leaves the colour unchanged.

**Colour Burn:** Looks at the colour information in each channel and darkens the base colour to reflect the blend colour by increasing the contrast. Blending with white produces no change.

**Linear Burn:** Looks at the colour information in each channel and darkens the base colour to reflect the blend colour by decreasing the brightness. Blending with white produces no change.

**Darker Colour:** Compares the total of all channel values for the blend and base colour and displays the lower value colour. Darker Colour does not produce a third colour, which can result from the Darken blend, because it chooses the lowest channel values from both the base and the blend colour to create the result colour.

### **Lighten modes:**

**Lighten:** Looks at the colour information in each channel and selects the base or blend colour—whichever is lighter—as the result colour. Pixels darker than the blend colour are replaced, and pixels lighter than the blend colour do not change.

**Screen:** Looks at each channel's colour information and multiplies the inverse of the blend and base colours. The result colour is always a lighter colour. Screening with black leaves the colour unchanged. Screening with white produces white. The effect is similar to projecting multiple photographic slides on top of each other.

**Colour Dodge:** Looks at the colour information in each channel and brightens the base colour to reflect the blend colour by decreasing the contrast. Blending with black produces no change.

**Linear Dodge (Add):** Looks at the colour information in each channel and brightens the base colour to reflect the blend colour by increasing the brightness. Blending with black produces no change.

**Lighter Colour:** Compares the total of all channel values for the blend and base colour and displays the higher value colour. Lighter Colour does not produce a third colour, which can result from the Lighten blend, because it chooses the highest channel values from both the base and blend colour to create the resulting colour.

## Light or Contrast Modes:

**Overlay:** Multiplies or screens the colours, depending on the base colour. Patterns or colours overlay the existing pixels while preserving the highlights and shadows of the base colour. The base colour is not replaced but mixed with the blend colour to reflect the lightness or darkness of the original colour.

**Soft Light:** Darkens or lightens the colours, depending on the blend colour. The effect is similar to shining a diffused spotlight on the image. If the blend colour (light source) is lighter than 50% grey, the image is lightened as if it were dodged. If the blend colour is darker than 50% grey, the image is darkened as if it were burned in. Painting with pure black or white produces a distinctly darker or lighter area but does not result in pure black or white.

**Hard Light:** Multiplies or screens the colours, depending on the blend colour. The effect is similar to shining a harsh spotlight on the image. If the blend colour (light source) is lighter than 50% grey, the image is lightened, as if it were screened. This is useful for adding highlights to an image. If the blend colour is darker than 50% grey, the image is darkened, as if it were multiplied. This is useful for adding shadows to an image. Painting with pure black or white results in pure black or white.

**Vivid Light:** Burns or dodges the colours by increasing or decreasing the contrast, depending on the blend colour. If the blend colour (light source) is lighter than 50% grey, the image is lightened by decreasing the contrast. If the blend colour is darker than 50% grey, the image is darkened by increasing the contrast.

**Linear Light:** Burns or dodges the colours by decreasing or increasing the brightness, depending on the blend colour. If the blend colour (light source) is lighter than 50% grey, the image is lightened by increasing the brightness. If the blend colour is darker than 50% grey, the image is darkened by decreasing the brightness.

**Pin Light:** Replaces the colours, depending on the blend colour. If the blend colour (light source) is lighter than 50% grey, pixels darker than the blend colour are replaced, and pixels lighter than the blend colour do not change. If the blend colour is darker than 50% grey, pixels lighter than the blend colour are replaced, and pixels darker than the blend colour do not change. This is useful for adding special effects to an image.

**Hard Mix:** Adds the red, green, and blue channel values of the blend colour to the RGB values of the base colour. If the resulting sum for a channel is 255 or greater, it receives a value of 255; if less than 255, a value of 0. Therefore, all blended pixels have red, green, and blue channel values of either 0 or 255. This changes all pixels to primary colours: red, green, blue, cyan, yellow, magenta, white, or black.

## Invert or Comparative Modes:

**Difference:** Looks at 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. Blending with white inverts the base colour values; blending with black produces no change.

**Exclusion:** Creates an effect similar to but lower in contrast than the Difference mode. Blending with white inverts the base colour values. Blending with black produces no change.

## HSL Modes:

**Hue:** Creates a result colour with the luminance and saturation of the base colour and the hue of the blend colour.

**Saturation:** Creates a result colour with the luminance and hue of the base colour and the saturation of the blend colour. Painting with this mode in an area with no (0) saturation (grey) causes no change.

**Colour:** Creates a result colour with the luminance of the base colour and the hue and saturation of the blend colour. This preserves the grey levels in the image and is useful for colouring monochrome images and for tinting colour images.

**Luminosity:** Creates a result colour with the hue and saturation of the base colour and the luminance of the blend colour. This mode creates the inverse effect of Colour mode.

Listing all these blending modes may seem a little over the top, however in practice you only really need to worry about a few that are the most often used.

Typically, the most commonly used blend modes are: Normal, Lighten, Darken, Overlay, Soft Light, colour, and Luminosity

**Tip:** If you are using adjustment layers for levels, curves or brightness /contrast adjustments, use "Luminosity" as the blend mode to avoid introducing colour shifts to your image.

## WORKING WITH OPACITY (TRANSPARENCY)

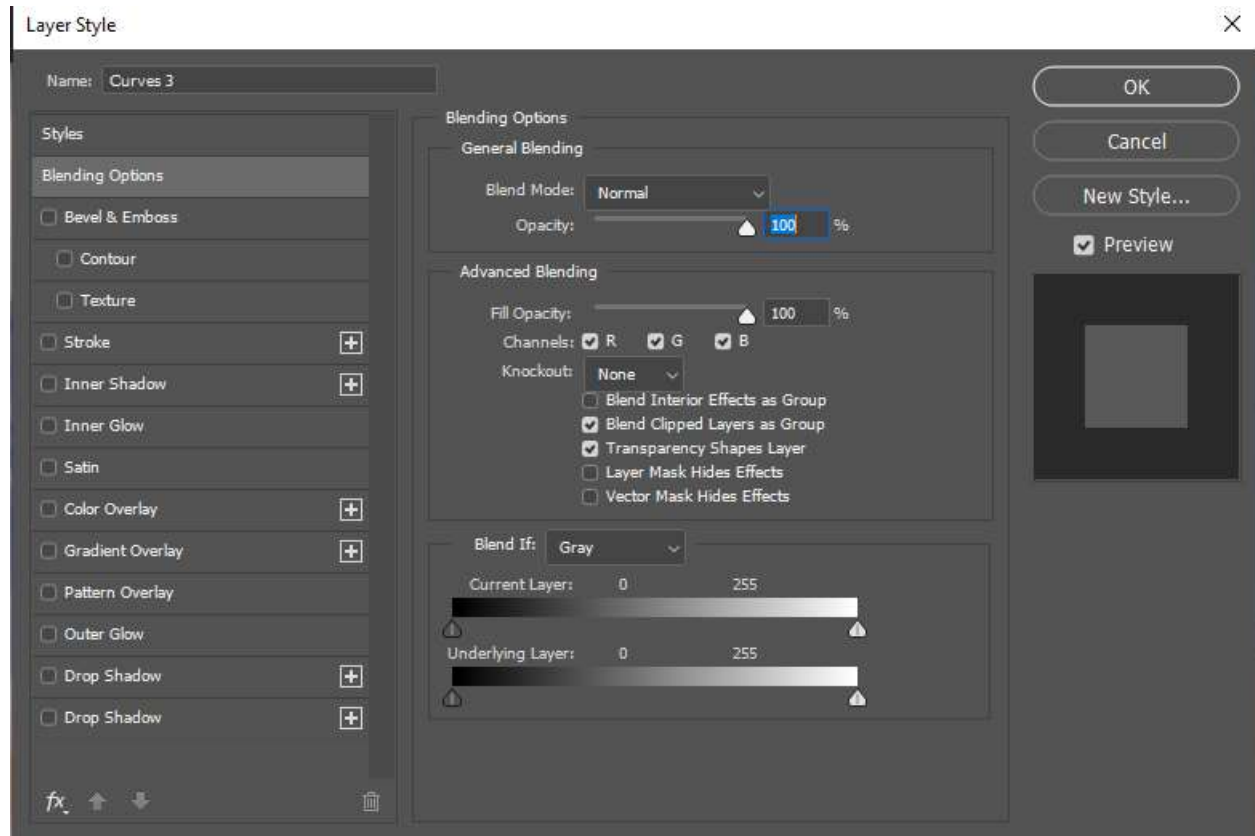
Adjusting the opacity or transparency of a layer is a lot simpler to follow than the various blend modes and is often the most commonly used of the blending options.

If you are using "artistic" filters – and by that, I mean any one of the myriads of special effects found under the "Filter" menu, you should be reducing the transparency of these filters as a matter of course. The filters available in Photoshop are interesting and can be effective in realising your vision, but they are overpowering if used in an undiluted form.

**Tip:** When working with adjustment layers I often make the adjustment greater than I really want and then fine tune it with the transparency as it is adjustable over a wide range (0- -100%).

To adjust the transparency, simply click on the Opacity arrow next to the existing value (default 100%). A slider appears which you can drag with your mouse with the effect visible as a live preview. Alternatively, you can highlight the existing value and type in a new value between 0 and 100%.

## WORKING WITH LAYER STYLES



**Above:** The “**Layer Styles**” options are a little less obvious than the transparency and blend modes however, here is where you will find the special treatments you can apply to layers such as: **Bevel and Emboss**, **Drop Shadows** etc. these are useful for text, but the main interest to us is in the “**Advanced Blending Options.**” To access these options, right mouse click on the layer of your choice (not on the thumbnail or layer name) and click on **Blending Options**. A new menu box opens with the **General and Advanced Blending** box open.

Here you can select the blending of the layer based on the luminosity values of the layer, without the need to make a mask, which can be a real time saver for some photographs.

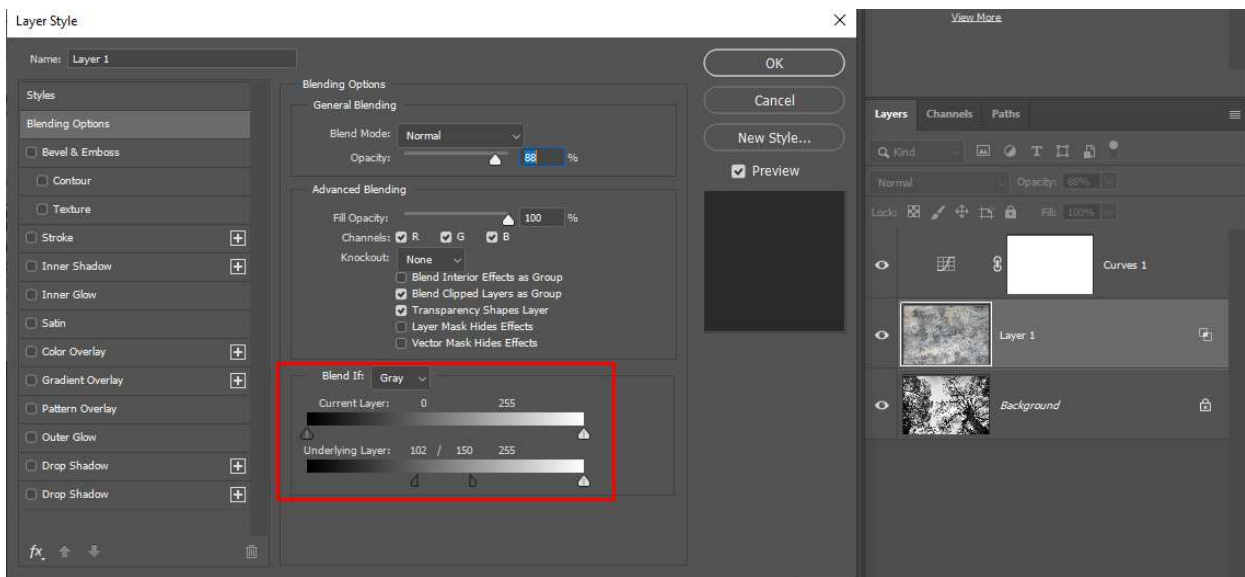
To access these controls, ignore the top part of the menu box and go to the bottom section labelled “**Blend If.**” By default, the mode is set to “Grey.” Leave this as is and go straight to the sliders beneath the box (You can blend by colour channel, but that is beyond our scope here).

The top slider called “**This Layer**” controls which brightness values from the current adjustment layer will be blended with the layers below. The bottom slider labelled “**Underlying Layer**” controls which brightness values from the layers below will be blended into the final “mix.”





**Above:** A composite image comprising a background layer (trees) and a texture layer above. The two layers have been blended using the Blend If Layer Style as shown below.



**Above:** The Blend If settings applied to the texture layer. The tonal range for the underlying layer has been modified to exclude blending the darker tones – the trees silhouette. The dark tones slider has been split to feather the transition by holding down the **Alt** key and splitting the slider. A greater distance apart means more feathering. No masks are required for this effect.

**Tip:** Using the blending options can save a lot of time in working on the mask if you are working on very dark or very light areas that are difficult to select.

## AND FINALLY

Working with layers, masks, blend modes and opacity in Photoshop provides access to the awesome processing power of Photoshop. Mastering these essential skills will open up a whole new range of creative possibilities.

Everything else we do in Photoshop is based around these skills and there are several more tools that make working with layers even more powerful and more creative. Master the basics of layers and you will have access to the most important part of Photoshop.

As all of these techniques are non-destructive, you can experiment as much as you like without risking damaging your base image.