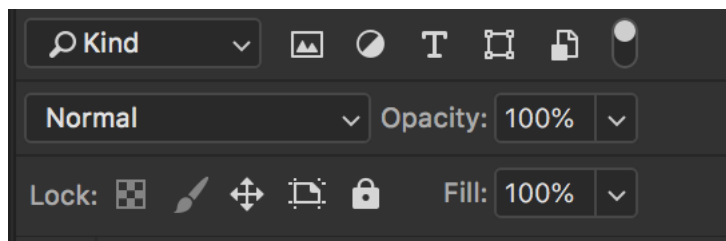


Layers

- Layers are like stacked layers of acetate over your base image.
- You can alter the each layer independently and this will not alter other layers = NON-DESTRUCTIVE.
- You can go back and change any layer, and this will not alter other layers = NON-DESTRUCTIVE.
- You can clip a layer to the layer below using alt/option, so that it only affects the layer immediately below.
- Note that many adjustment layers can be applied to colour or tone, and there are also useful presets.
- It is worth naming layers so that you understand what each one is for when you come back to the file later.
- Grouping layers is possible, and when you have many layers this becomes very useful. Masks, opacity and fill can be applied to a group.
- Layers header
 - Layers filters
 - Layer opacity, fill and lock



- Opacity vs fill
 - The Opacity value controls the transparency of anything and everything on a layer, including layer styles. The Fill value, on the other hand, *affects only the actual contents of the layer*, which in my case here was the text. Layer styles, which Photoshop treats as separate from a layer's actual contents, remain 100% visible and are unaffected by the Fill value.
- Creating fill layers
 - Layer > New fill layer > Solid colour / Gradient / Pattern
- Blendif to alter which tones are affected by the adjustment layer
 - Alt-click to feather edge
- Using a number of adjustment layers subtly can be very effective in improving an image
- Luminosity vs colour
 - Luminosity only affects tone (preserves colours)
 - Colour only affects colours (preserves tones)

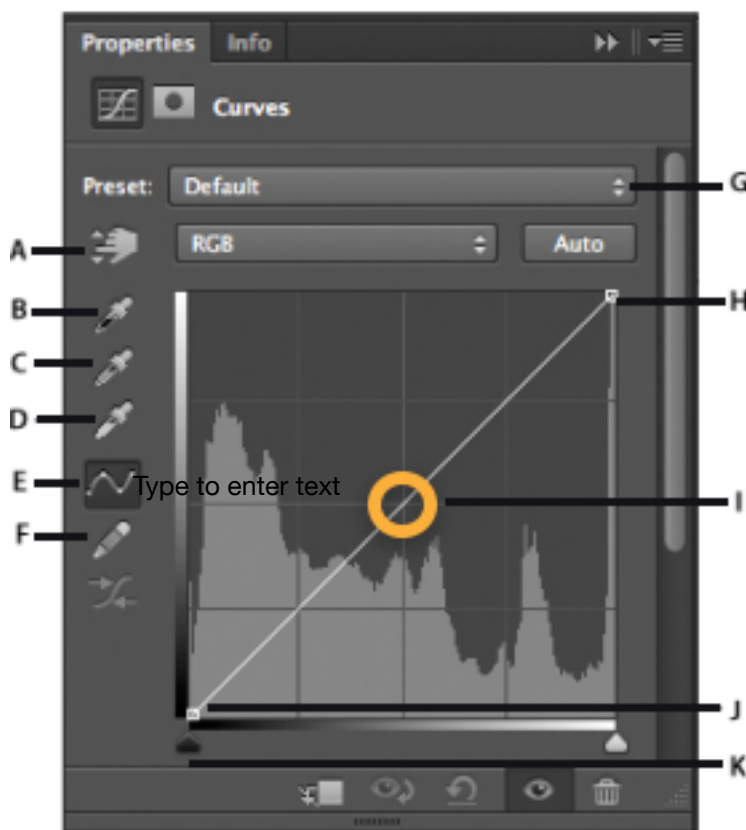
All this relies on mathematics. Each coloured pixel has a numerical value, and this number can be manipulated mathematically to change the colour of the pixel (shade or tone or both)

Masks

- “Black conceals., white reveals”
- Alt click on layer mask to reveal it
- Make selection then create mask
- Alt drag mask to copy to another layer

Adjustment layers

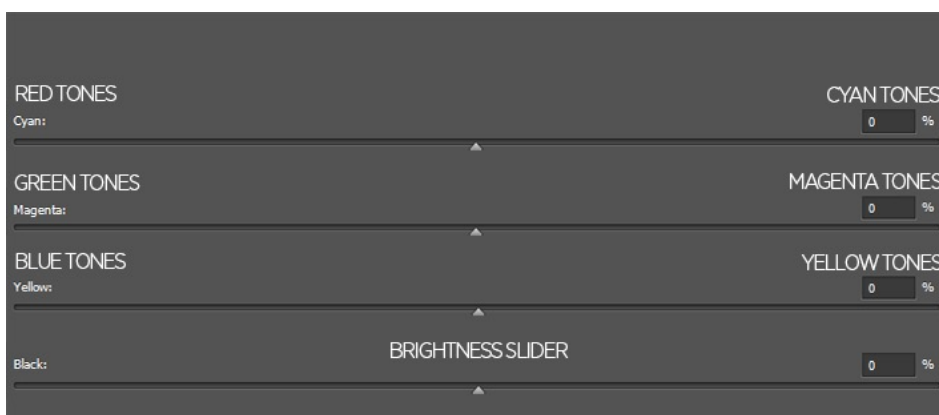
- Brightness/contrast
 - (do not use legacy in photos as it is likely to cause clipping)
- Levels
 - A simplified form of curves
 - Moves the midtone (level 128) and changes the intensity values of the middle range of gray tones without dramatically altering the highlights and shadows.
- Curves
 - adjust tones or colours
 - In the Curves adjustment, you adjust points throughout an image's tonal range. Initially, the image's tonality is represented as a straight diagonal line on a graph.
 - When adjusting an RGB image, the upper-right area of the graph represents the highlights and the lower-left area represents the shadows.
 - The horizontal axis of the graph represents the input levels (original image values) and the vertical axis represents the output levels (new adjusted values).
 - As you add control points to the line and move them, the shape of the curve changes, reflecting your image adjustments.
 - The steeper sections of the curve represent areas of higher contrast while flatter sections represent areas of lower contrast.



- A. On-image adjustment tool
- B. Sample in image to set black point.
- C. Sample in image to set gray point.
- D. Sample in image to set white point.
- E. Edit points to modify the curve.
- F. Draw to modify the curve.

- G. Curves presets menu
- H. Set black point.
- I. Set gray point.
- J. Set white point.
- K. Show clipping.

- Exposure
 - Offset slider affects blacks
 - Gamma slider affects midtones
 - Useful for creating realistic shadows
- Vibrance
 - Vibrance adjusts the saturation so that clipping is minimized as colors approach full saturation. This adjustment increases the saturation of less-saturated colors more than the colors that are already saturated. Vibrance also prevents skintones from becoming over saturated. Saturation slider affects all colour saturation equally.
- Hue/saturation - can affect whole image, individual channels or specific colours
 - Hue - moves round colour wheel
 - Saturation - strength of colour
 - Lightness - mix white/black with colour
- Colour balance
 - The Color Balance command changes the overall mixture of colors in an image for generalized color correction.
- Black and white
 - Can change colours in luminosity blend mode
- Photo filter
 - The Photo Filter adjustment mimics the technique of placing a colored filter in front of the camera lens to adjust the color balance and color temperature of the light transmitted through the lens and exposing the film. Photo Filter also lets you choose a color preset to apply a hue adjustment to an image. If you want to apply a custom color adjustment, the Photo Filter adjustment lets you specify a color using the Adobe Color Picker.
- Channel mixer
 - repair bad channels
 - produce grayscale images from color images
 - create tinted images and more intense special effects
 - swapping or duplicating channels.
- Colour lookup
 - Alter the colour palette of the image
- Invert
 - Inverts pixels in an image
- Posterise
 - Conversion of a continuous gradation of tone to several regions of fewer tones, with abrupt changes from one tone to another
 - Use arrow keys to control number of colours carefully
- Threshold
 - converts grayscale or color images into high-contrast, black-and-white images.
 - You can specify a certain level as a threshold. All pixels lighter than the threshold are converted to white; and all pixels darker are converted to black.
 - Useful for determining the lightest and darkest areas of an image.
- Selective colour
 - Works with opposite colours on the colour wheel.
 - Relative more subtle than absolute



- Gradient map
 - Maps the equivalent grayscale range of an image to the colors of a specified gradient fill. If you specify a two-colour gradient fill, for example, shadows in the image are mapped to one of the endpoint colours of the gradient fill, highlights are mapped to the other endpoint colour, and midtones are mapped to the gradations in between.
 - Can use for b&w conversions

Blend modes

- **Normal Group**
 - 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.
 - Behind
 - Edits or paints only on the transparent part of a layer. This mode works only in layers with Lock Transparency deselected and is analogous to painting on the back of transparent areas on a sheet of acetate.
 - Clear
 - Edits or paints each pixel and makes it transparent. This mode is available for the Shape tools (when fill region is selected), Paint Bucket tool, Brush tool, Pencil tool, Fill command, and Stroke command. You must be in a layer with Lock Transparency deselected to use this mode.
- **Darken group**
 - 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 color are replaced, and pixels darker than the blend color 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. When you're painting with a colour other than black or white, successive strokes with a painting tool produce progressively darker colours. The effect is similar to drawing on the image with multiple marking pens.
 - Color Burn
 - Looks at the colour information in each channel and darkens the base colour to reflect the blend colour by increasing the contrast between the two. 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.
- **Lighten group**
 - 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.
 - Use for adding whites
 - Color Dodge
 - Looks at the colour information in each channel and brightens the base colour to reflect the blend colour by decreasing contrast between the two. 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 color by increasing the brightness. Blending with black produces no change.
- **Overlay group**
 - 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.
 - Use for adding texture layers
 - 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.
 - Can use for dodge and burn for a more subtle effect
 - Use for adding texture layers and soft light layers
 - 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 additive colours (red, green, or blue), white, or black.

- **Difference group**
 - 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.
 - How to use the difference blend mode for colour grading https://f64academy.com/difference-blend-mode-photoshop/?mc_cid=815dc0c731&mc_eid=626171e18b
 - 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.
 - Subtract
 - Looks at the colour information in each channel and subtracts the blend colour from the base colour. In 8- and 16-bit images, any resulting negative values are clipped to zero.
 - Divide
 - Looks at the colour information in each channel and divides the blend colour from the base colour.
- **Hue group**
 - 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 color with the luminance and hue of the base color and the saturation of the blend colour. Painting with this mode in an area with no (0) saturation (grey) causes no change.
 - Color
 - 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.
 - Use with a b&w adjustment layer to change the tonal value of colours
 - Lighter Color
 - 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 result colour.
 - Darker Color
 - 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.

Layer styles

- Non destructive
- Can be switched on and off
- Where blending modes live