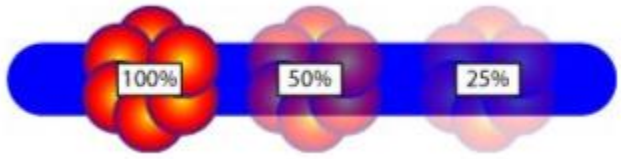
How To: An Explanation of Illustratorâ€™s Blending Modes

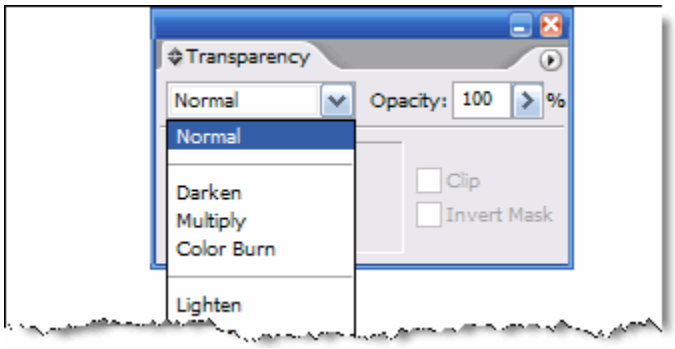
Illustrator's Transparency palette sets the opacity of objects, and allows you to use blending modes determine how the colors of objects mix with the colors of objects they cross. Hereâ€™s how the blending modes work.

Blending modes control how the colors of the objects on the page interact with each other. Using Illustrator's Transparency palette, you can set the blending modes to get the effect you want.

When you first open a blank document in Illustrator and draw objects on the page, the transparency palette shows the opacity is set at 100% by default. You can change this by either changing the opacity using the opacity dropdown menu by either typing in a value or using the slider to change it. This affects the selected object or objects. 100% is fully opaque and 0% is fully transparent.



The dropdown menu on the left contains the blending modes. Choosing a mode from this menu applies it to the selected object or objects. The mode determines how the colors in the objects interact with the colors of the objects below.



Normal is the default, and the objects interact with each other as if they were both solid color objects, at 100% opacity. Normal mode displays the full value of the colors of all of the objects.

The blue square above is partially obscured by the floral square. In normal mode, you canâ€™t see the hidden part of the blue square. The rest of the modes interact with each other in different ways. If you are used to Photoshop, you know in Photoshop these are referred to as layer modes. They affect everything on the layer and you can have only one per layer. Not so in Illustrator! Every object can have its own blending mode. The modes go with the objects, not the layers.

Therefore you can have three objects with three different blending modes, and they will all react to each other differently.

Darkening Modes

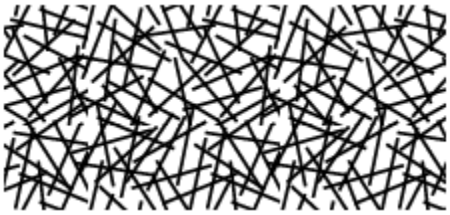
There are three darkening modes: Darken, Multiply, and Color Burn. These modes create darkening effects when colors are used that are darker than 50% gray, which refers to colors whose luminosity is less than the luminosity of gray that is 50% white and 50% black.

Darken: In Darken mode, Illustrator compares colors in the blended layer with colors in the lower layer, and calculates which is darker. Wherever a pixel is darker on one layer than on the other, the darker pixel replaces the lighter pixel. It ignores values that are darker than the blending layer.

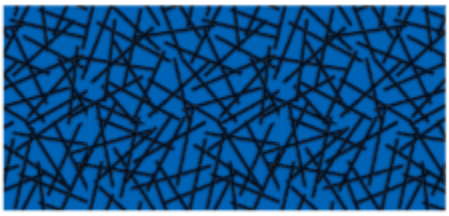
Multiply: This mode darkens all pixels. Colors in the base layer or object are multiplied by the blended layer to produce a combination of both, which is always darker that the original. If you multiply any color with black, you get black and multiplying with white leaves the other color unchanged and the area that was white will be transparent (which in this case means it will show through as if there were no blending mode applied.) One of my favorite uses for this mode is to add scanned line art or handwritten text that is on white paper. Copy the scanned image to the photo and it will be on its own layer. Change this layer to Multiply, and the line art or text will show but the scanned page will be invisible.

To illustrate this, in this example there are two objects: one object is blue, and one object is a black and white pattern:

When the upper object, the black and white pattern, is dragged on top of the blue rectangle, in normal mode it hides the blue rectangle.



After the blending mode is changed to multiply, the white background disappears and all that is visible is the black pattern.



Color Burn: Colors in the blended layer are applied to those in the base to enhance contrast. The degree of color change depends on the intensity of tones in the blending layer. The darker the color the more intense the effect, and white areas remain unchanged.

Lightening Modes

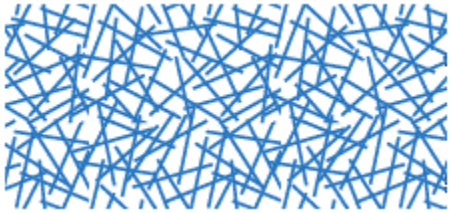
These modes create lightening effects when colors are used that are lighter than 50% gray, which refers to colors whose luminosity is more than the luminosity of gray that is 50% white and 50% black. There are three lightening modes: Lighten, Screen, and Color Dodge.

Lighten: This mode is the opposite of Darken. In Lighten mode, Illustrator looks at the colors in both layers or objects and replaces the darker values with lighter values. It ignores values that are lighter than the blending layer.

Screen: Colors in the blending and base objects or layers are multiplied in inverse values, resulting in a lighter image with less contrast. Screen is the opposite of multiply.

Anything black in the blended layer will be transparent, letting the base layer show through. Using the same two rectangles as we used before:

Changing the blending mode to Screen results in the blue from the bottom object showing through the areas on the top object that were black:



Color Dodge: This blending mode lightens the light tones and increases contrast, and does not affect dark image areas. This is the opposite of Color Burn but you may not always get exactly opposite results.

Contrast Blending Modes

These modes increase contrast by changing highlights and shadows. We find Overlay, Soft Light, and Hard Light modes in this section. Overlay and Hard Light are useful in composites for dramatic effects, while Soft Light is more subtle, and gives a softer, but very effective, blending.

Overlay: Overlay is a mix of multiply and screen and works by multiplying the dark values and screening the light values of the base layer. It retains the brightness, so is often harsher than its companion, Soft Light.

Soft Light: While Overlay is a mix of Multiple and Screen Mode, Soft Light is a mixture of Darken and Lighter mode, so it works the same as Overlay except the effect is more subtle and softer.

Hard Light: When over 50% grayscale, the pixels on the base layer are screened, and when lower than 50% they are multiplied. Hard Light is similar to Overlay, but more dramatic.

Comparative Blend Modes

These modes use mathematics to compare layers with one another. There are two modes here, Difference and Exclusion.

Difference: Difference reacts to the differences between the upper and lower layer pixels. Identical values of the two layers are shown as black, and everything else shows as inverted colors.

Exclusion: Exclusion is less contrasted than Difference.

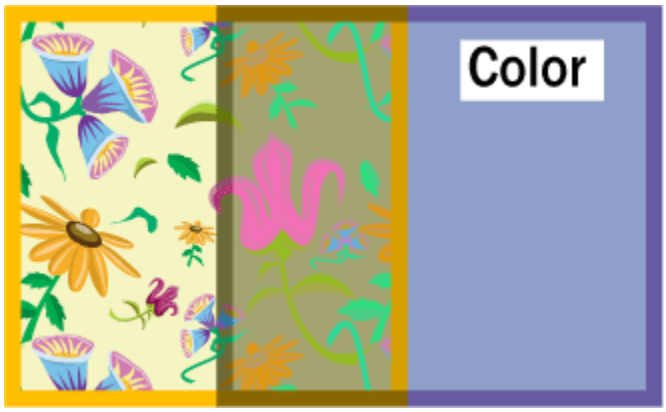
Image Component Blending Modes

These modes, Hue, Saturation, Color, and Luminosity, change the attributes of the object or layer.

Hue: Hue changes the hue of the lower layer to the hue of the upper layer but leaves brightness and saturation levels alone.

Saturation: Saturation changes the saturation of the lower layer to the hue of the upper layer but leaves brightness and hue levels alone.

Color: Color changes the base layer to the hue of the blending layer but leaves luminosity of the base layer alone. Color mode is a great way to change the color of an image.



Luminosity: Luminosity changes the luminosity of the base layer to the luminosity of the blending layer while leaving hue and saturation the same on the base layer.

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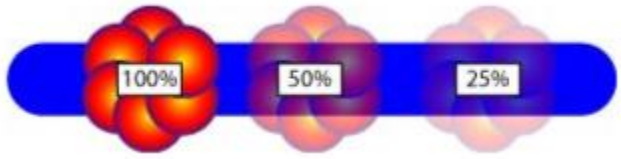

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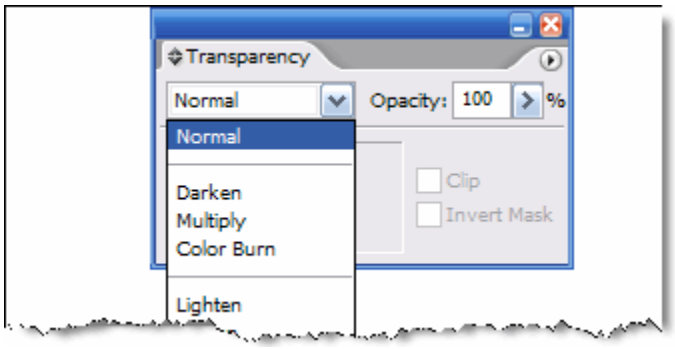

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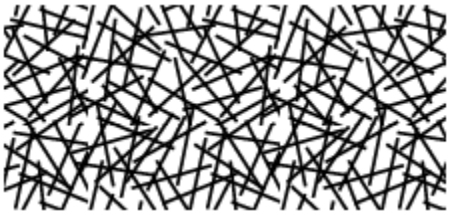

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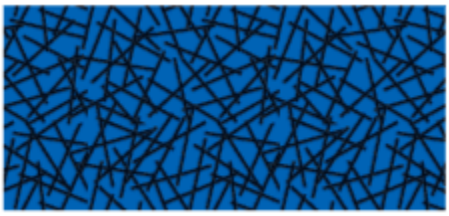

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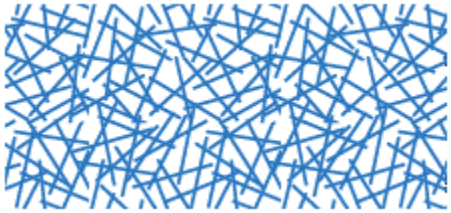

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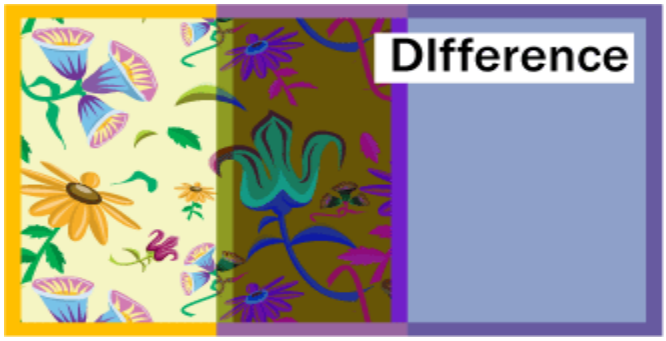

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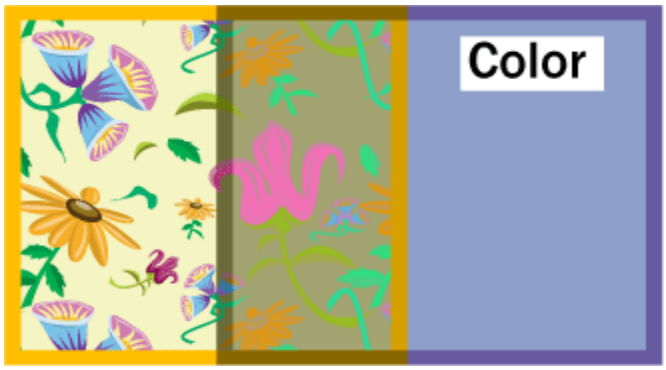

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