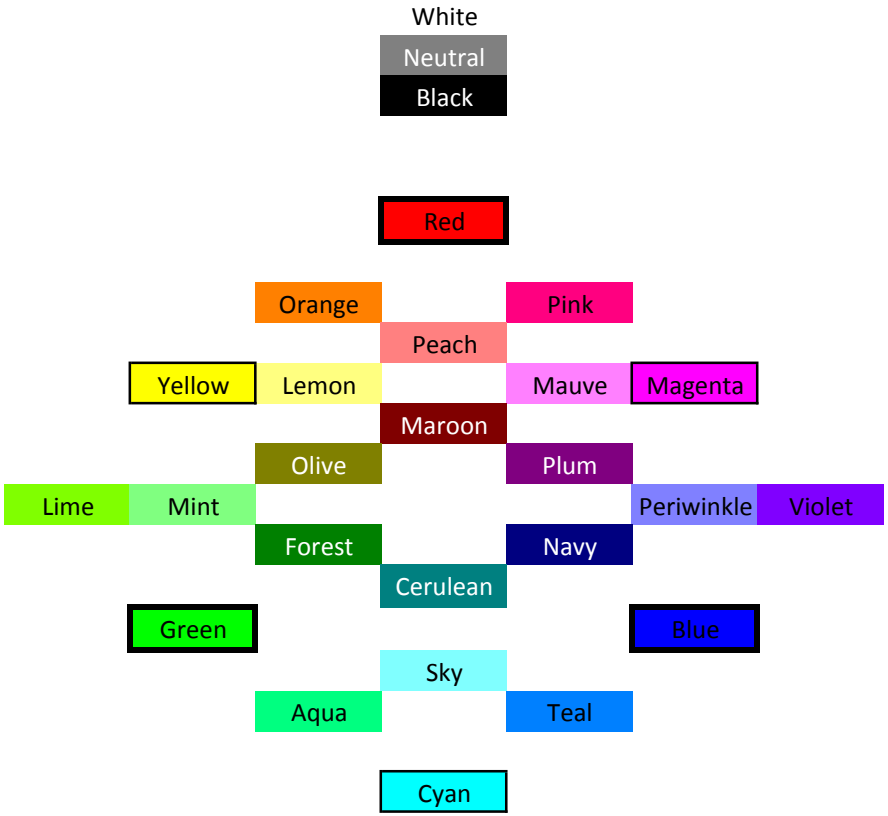
The Channel Mixer



		RGB Values			% Of Max				% Of Sum			*Values to create colour filters in "grey" section of channel mixer	
		R	G	B	R	G	B	SUM (%)	R (100)	G (100)	B (100)		Opposite
Primary	R	255	0	0	100%	0%	0%	100%	100%	0%	0%		C
	G	0	255	0	0%	100%	0%	100%	0%	100%	0%		M
	B	0	0	255	0%	0%	100%	100%	0%	0%	100%		Y
Secondary	C	0	255	255	0%	100%	100%	200%	0%	50%	50%		R
	M	255	0	255	100%	0%	100%	200%	50%	0%	50%		G
	Y	255	255	0	100%	100%	0%	200%	50%	50%	0%		B
Tertiary	P	255	0	128	100%	0%	50%	150%	67%	0%	33%		A
	L	128	255	0	50%	100%	0%	150%	33%	67%	0%		V
	T	0	128	255	0%	50%	100%	150%	0%	33%	67%		O
	A	0	255	128	0%	100%	50%	150%	0%	67%	33%		P
	V	128	0	255	50%	0%	100%	150%	33%	0%	67%		L
	O	255	128	0	100%	50%	0%	150%	67%	33%	0%		T
Dark	Mr	128	0	0	50%	0%	0%	50%					Ce
	Fr	0	128	0	0%	50%	0%	50%					Pl
	Nv	0	0	128	0%	0%	50%	50%					Ol
	Cr	0	128	128	0%	50%	50%	100%					Ma
	Pl	128	0	128	50%	0%	50%	100%					Fo
	Ol	128	128	0	50%	50%	0%	100%					Na
Pastel	Pc	255	128	128	100%	50%	50%	200%					Sk
	Mn	128	255	128	50%	100%	50%	200%					Mv
	Pr	128	128	255	50%	50%	100%	200%					Lm
	Sk	128	255	255	50%	100%	100%	250%					Pc
	Mv	255	128	255	100%	50%	100%	250%					Mn
	Lm	255	255	128	100%	100%	50%	250%					Pr
Grey	W	255	255	255	100%	100%	100%	300%					K
	N	128	128	128	50%	50%	50%	151%					N
	K	0	0	0	0%	0%	0%	0%					W

Each channel of channel mixer increases or decreases value of just that channel.
Eg. In R channel, moving any of the RGB sliders will only affect the R channel. In G channel, moving any slider will only affect the G channel.
This value change causes saturation, luminosity, and hue shift, pending how it combines with values in the other channels.
If value = 0, decreasing that value will have no apparent affect
If value = 255, increasing that value will have no apparent affect
The three sliders in each channel must sum to 100% in order for greys to remain neutral.

Below are tables showing how the primary, secondary and tertiary colours will shift, pending which slider is adjusted in which channel.
Here are the formulas used to find these colours:

Decrease: Channel value - (adjustment percentage * slider colour value)
Increase: Channel value + (adjustment percentage * slider colour value)

Eg 1. You are adjusting Violet, which is R 128, G 0, B 255. You decrease the B slider by 50% in the R channel.
Channel value = 128, adjustment % = 0.5, slider colour value = 255
Therefore, new value = 128 - (0.5*255) = 0
New RGB value = R 0, G 0, B 255. New colour is Blue.

Eg 2. You are adjusting Peach, which is R 255, G 128, B 128. You increase the R slider by 200% in the G channel.
Channel value = 128, adjustment % = 2, slider colour value = 255
Therefore, new value = 128+(2*255) = 638
New RGB value = R 255, G 638, B 128
However because you cannot have a value < 0 or > 255, our new value is R 255, G 255, B 128. New colour is Lemon.

Keep in mind it is the values that are changing, so the colours will look slightly different in each colour space.
The profile used in this document is "Generic RGB" in Excel.

**blank spaces indicate colour stays the same.*

Red Channel

< Decrease sliders 50% Increase sliders 50% >

B	G	R	Colour	R	G	B
C	C	C	N	R	R	R
		Ma	R			
		Pl	P			
V		V	M			
B			V			M
			B			V
			T			Pr
			C		Sk	Sk
			A		Mn	
			G		L	
	G		L		Y	
	L	L	Y			
		Ol	O			

< Decrease sliders 100% Increase sliders 100% >

B	G	R	Colour	R	G	B
C	C	C	N	R	R	R
		K	R			
Pl		Nv	P			
B		B	M			
B		B	V	M		M
			B			M
			T		Pr	Mv
			C		W	W
			A		Mn	Mn
			G		Y	
	G	G	L	Y	Y	
	G	G	Y			
	Ol	Fr	O			

Green Channel

< Decrease sliders 50% Increase sliders 50% >

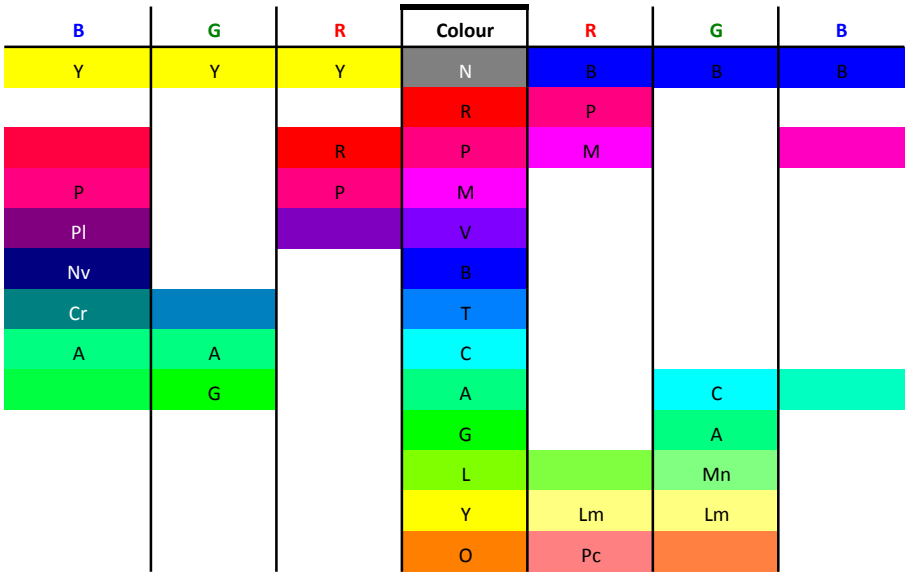
B	G	R	Colour	R	G	B
M	M	M	N	G	G	G
			R	O		
			P	Pc		
			M	Mv		Mv
			V			Pr
			B			T
B			T			C
T	T		C			
	Cr		A			
	Fr		G			
	Ol		L			
	O	O	Y			
		R	O	Y		

< Decrease sliders 100% Increase sliders 100% >

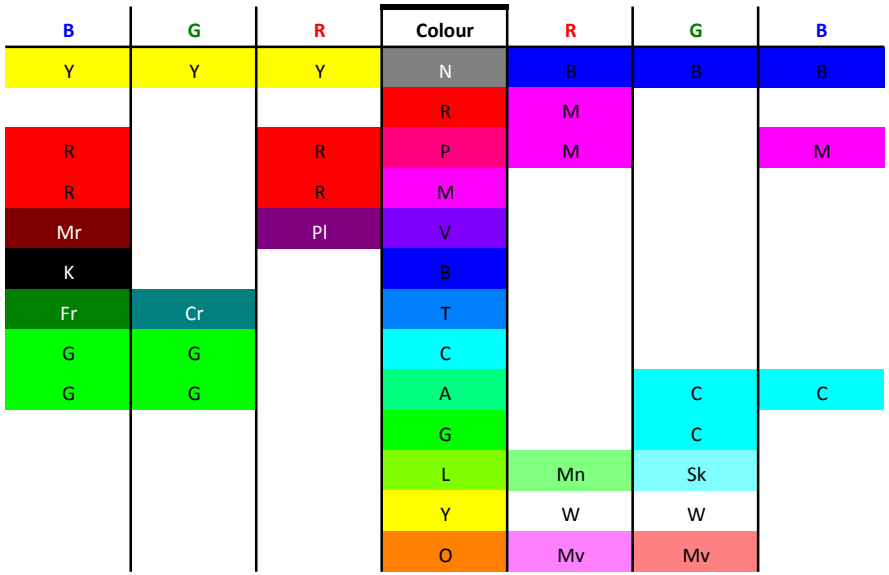
B	G	R	Colour	R	G	B
M	M	M	N	G	G	G
			R	Y		
			P	Lm		Pc
			M	W		W
			V	Pr		Sk
			B			C
B	B		T		C	C
B	B		C			
Cr	Nv		A			
	K		G			
	Mr	Ol	L			
	R	R	Y			
	R	R	O	Y	Y	

Blue Channel

< Decrease sliders 50% Increase sliders 50% >



< Decrease sliders 100% Increase sliders 100% >



Notes:

You might wonder why increasing B in B channel has no effect on blues. That is because all starting blues in these tables are already at 100% saturation (B 255). Ditto increasing G in G channel, and R in R channel.

You cannot saturate past 100%. However increasing B in less saturated blues will have an affect. Ditto G in less saturated greens, and R in less saturated reds.

Simple Guidelines

Red channel

Increase	Any	Turns N > R. Saturates R. Desaturates C.
	R	Any colour with red in it (L, Y, O, R, P, M, V) becomes more red. Turns L > Y, V > M
	G	Any colour with green in it (T, C, A, G, L, Y, O) becomes more red. Turns G > Y, C > W
	B	Any colour with blue in it (P, M, V, B, T, C, A) becomes more red. Turns B > M, Turns C > W.
Decrease	Any	Turns N > C. Desaturates R. Saturates C.
	R	Any colour with red in it (L, Y, O, R, P, M, V) becomes more cyan. Turns Y > G, B > M, R > K
	G	Any colour with green in it (T, C, A, G, L, Y, O) becomes more cyan. Turns Y > G
	B	Any colour with blue in it (P, M, V, B, T, C, A) becomes more cyan. Turns M > B

Green channel

Increase	Any	Turns N > G. Saturates R. Desaturates M.
	R	Any colour with red in it (L, Y, O, R, P, M, V) becomes more green. Turns R > Y, M > W.
	G	Any colour with green in it (T, C, A, G, L, Y, O) becomes more green. Turns O > Y, T > C.
	B	Any colour with blue in it (P, M, V, B, T, C, A) becomes more green. Turns B > C, M > W
Decrease	Any	Turns N > M. Desaturates R. Saturates M.
	R	Any colour with red in it (L, Y, O, R, P, M, V) becomes more magenta. Turns Y > R.
	G	Any colour with green in it (T, C, A, G, L, Y, O) becomes more magenta. Turns Y > R, C > B, G > K
	B	Any colour with blue in it (P, M, V, B, T, C, A) becomes more magenta. Turns C > B

Blue channel

Increase	Any	Turns N > B. Saturates B. Desaturates Y.
	R	Any colour with red in it (L, Y, O, R, P, M, V) becomes more blue. Turns R > M, Y > W
	G	Any colour with green in it (T, C, A, G, L, Y, O) becomes more blue. Turns G > C, Y > W
	B	Any colour with blue in it (P, M, V, B, T, C, A) becomes more blue. Turns P > M, A > C
Decrease	Any	Turns N > Y. Desaturates B. Saturates Y.
	R	Any colour with red in it (L, Y, O, R, P, M, V) becomes more yellow. Turns M > R
	G	Any colour with green in it (T, C, A, G, L, Y, O) becomes more yellow. Turns C > G
	B	Any colour with blue in it (P, M, V, B, T, C, A) becomes more yellow. Turns C > G, M > R, B > K

Trends:

Increasing sliders gives secondaries and pastels.

Decreasing sliders gives primaries and darks.

Increasing sliders that don't match the channel (Eg. R and G in B) turns affected primaries into secondaries between slider colour and channel colour on the hue wheel, and the channels opposite white.

Increasing sliders that do match the channel (Eg. B in B) turns affected tertiaries at edge of slider colours range into secondary of that channel.

Decreasing sliders that don't match the channel (Eg. R and G in B) turns affected secondaries between slider colour and channel colour on the hue wheel into slider colour.

Decreasing sliders that do match the channel (Eg. B in B) turns both affected secondaries into primaries that don't match the channel, and the channel black.

Now to really make your head spin, try increasing and decreasing in multiple directions, in multiple channels!