RGBTone Cube Design

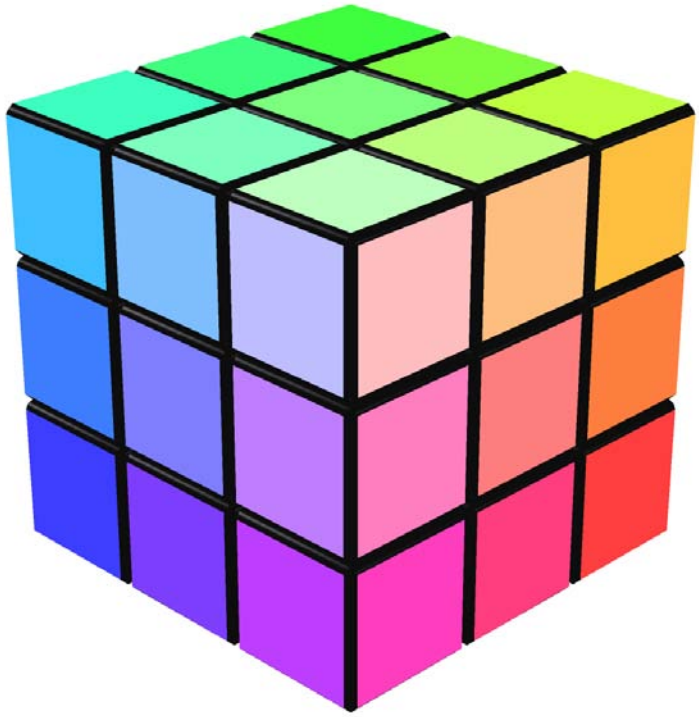
Introduction

An **RGBTone Cube** is a NxNxN **Cube** used as an **RGB (Red, Green, Blue)** color chart. One example of a 3x3x3 cube used as a color chart is the Rubitone, a Rubik's Cube coded with the Pantone Color Matching System. This is the way someone may want to choose his next bedroom color, cycling through the possible chromatic permutations on a puzzle cube at a paint desk. Unlike a traditional Rubik's cube, the object here is not to solve it, but to match colors that might look good in a bedroom or living space.

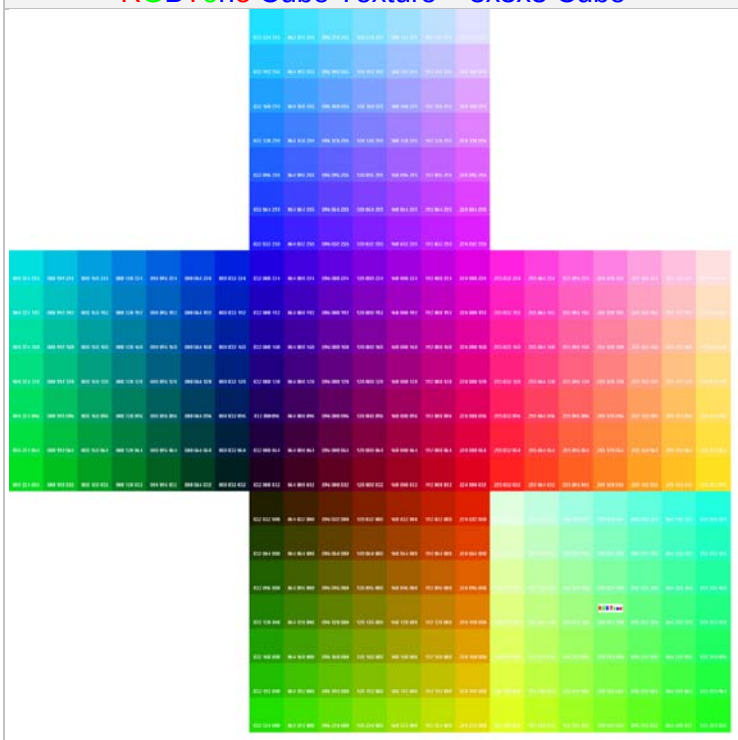
RGB Color Charts – Useful Links	
http://www.webreference.com/dev/graphics/palette.html	http://en.wikipedia.org/wiki/RGB_color_model
http://www.smallrock.net/resources/dcentral/colorcube.htm	http://www.web-source.net/216_color_chart.htm

RGBTone Cubes – CubeTwister

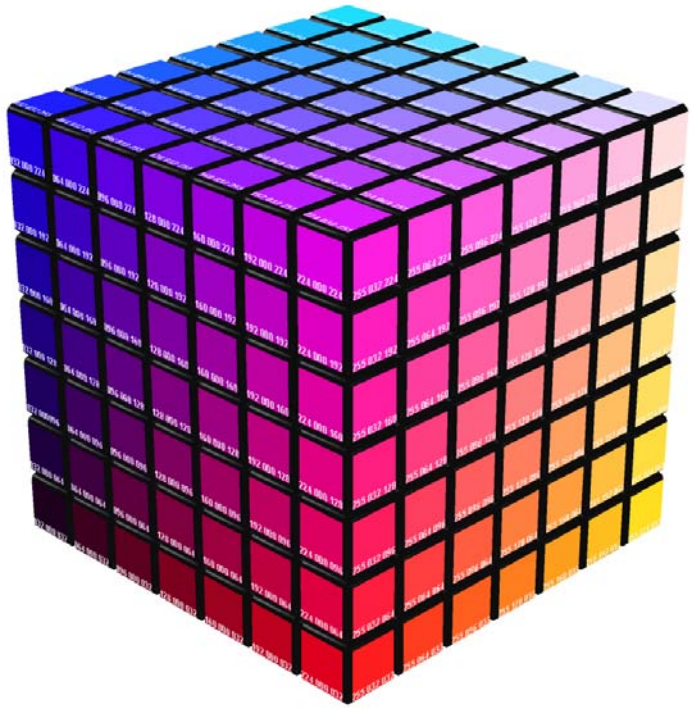
RGBTone Cube Texture – 3x3x3 Cube



Virtual RGBTone Cube – 3x3x3 Cube



RGBTone Cube Texture – 7x7x7 Cube



Virtual RGBTone Cube – 7x7x7 Cube

Frontside RGB Values – 3x3x3 Cube

40FF40	80FF40	C0FF40
40FF80	80FF80	C0FF80
40FFC0	80FFC0	C0FFC0

40C0FF	80C0FF	C0C0FF
4080FF	8080FF	C080FF
4040FF	8040FF	C040FF

FFC0C0	FFC080	FFC040
FF80C0	FF8080	FF8040
FF40C0	FF4080	FF4040

Backside RGB Values – 3x3x3 Cube

C000C0	C00080	C00040
8000C0	800080	800040
4000C0	400080	400040

0040C0	004080	004040
0080C0	008080	008040
00C0C0	00C080	00C040

404000	804000	C04000
408000	808000	C08000
40C000	80C000	C0C000

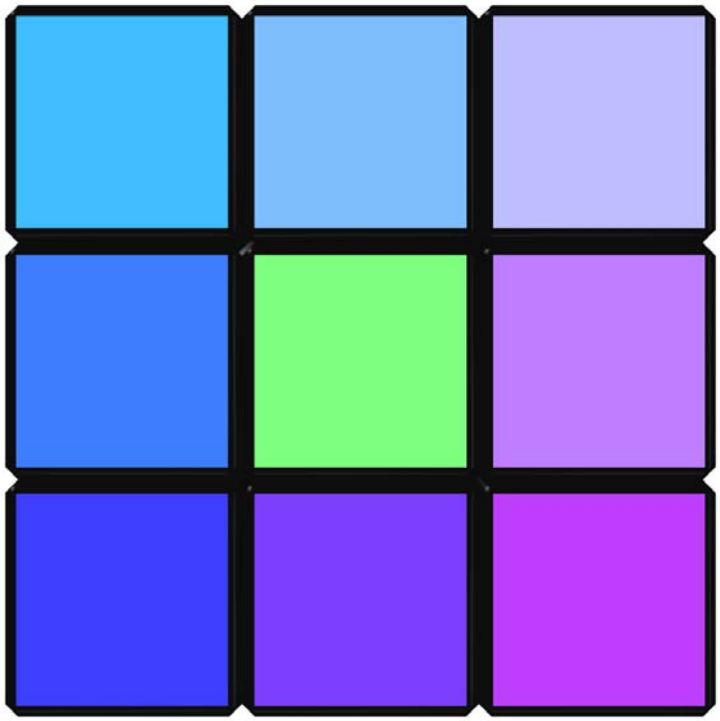
RGB Tone Cube Color Codes (Hexadecimal/Decimal)

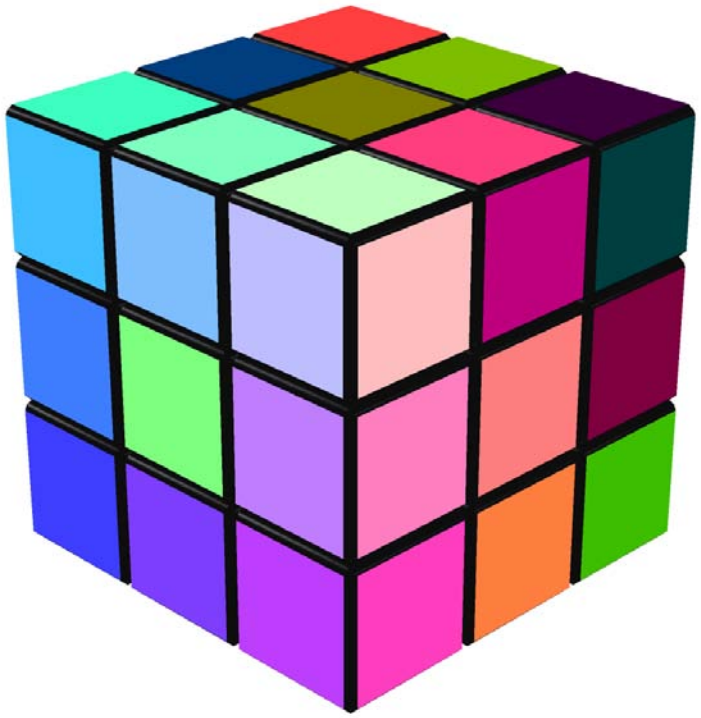
			40FF40 R64 G255 B64	80FF40 R128 G255 B64	C0FF40 R192 G255 B64			
			40FF80 R64 G255 B128	80FF80 R128 G255 B128	C0FF80 R192 G255 B128			
			40FFC0 R64 G255 B192	80FFC0 R128 G255 B192	C0FFC0 R192 G255 B192			
00C040 R0 G192 B64	00C080 R0 G192 B128	00C0C0 R0 G192 B192	40C0FF R64 G192 B255	80C0FF R128 G192 B255	C0C0FF R192 G192 B255	FFC0C0 R255 G192 B192	FFC080 R255 G192 B128	FFC040 R255 G192 B64
008040 R0 G158 B64	008080 R0 G128 B128	0080C0 R0 G128 B192	4080FF R64 G128 B255	8080FF R128 G128 B255	C080FF R192 G128 B255	FF80C0 R255 G128 B192	FF8080 R255 G128 B128	FF8040 R255 G128 B64
004040 R0 G158 B64	004080 R0 G128 B128	0040C0 R0 G128 B192	4040FF R64 G64 B255	8040FF R128 G64 B255	C040FF R192 G64 B255	FF40C0 R255 G64 B192	FF4080 R255 G64 B128	FF4040 R255 G64 B64
			4000C0 R64 G0 B192	8000C0 R128 G0 B192	C000C0 R192 G0 B192	C0C000 R192 G192 B0	80C000 R128 G192 B0	40C000 R64 G192 B0
			400080 R64 G0 B128	800080 R128 G0 B128	C00080 R192 G0 B128	C08000 R192 G128 B0	808000 R128 G128 B0	408000 R64 G128 B0
			400040 R64 G0 B64	800040 R128 G0 B64	C00040 R192 G0 B64	C04000 R192 G64 B0	804000 R128 G64 B0	404000 R64 G64 B0

	Up G255		
Left R0	**F**ront B255	**R**ight R255	**B**ack B0
	Down G0	**B**ack B0	

Comparing Color Shades

Center Move

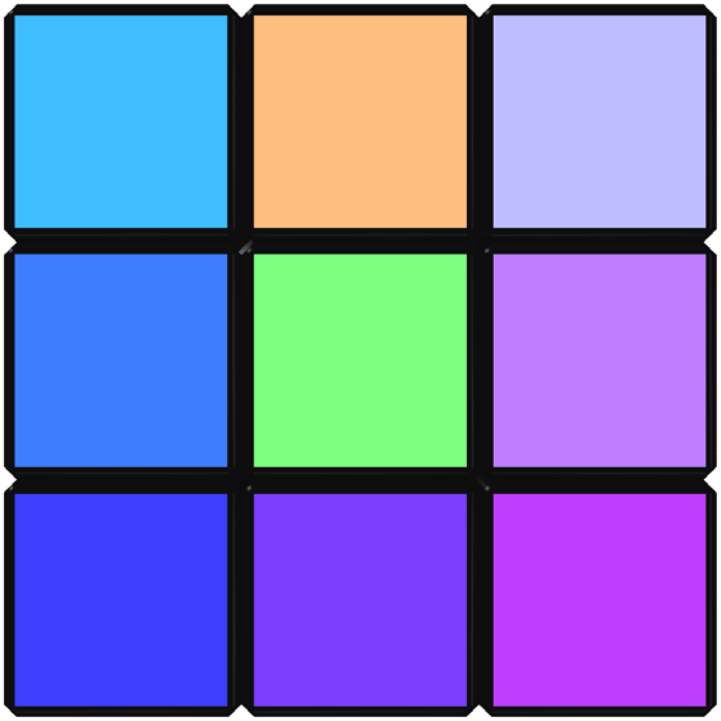


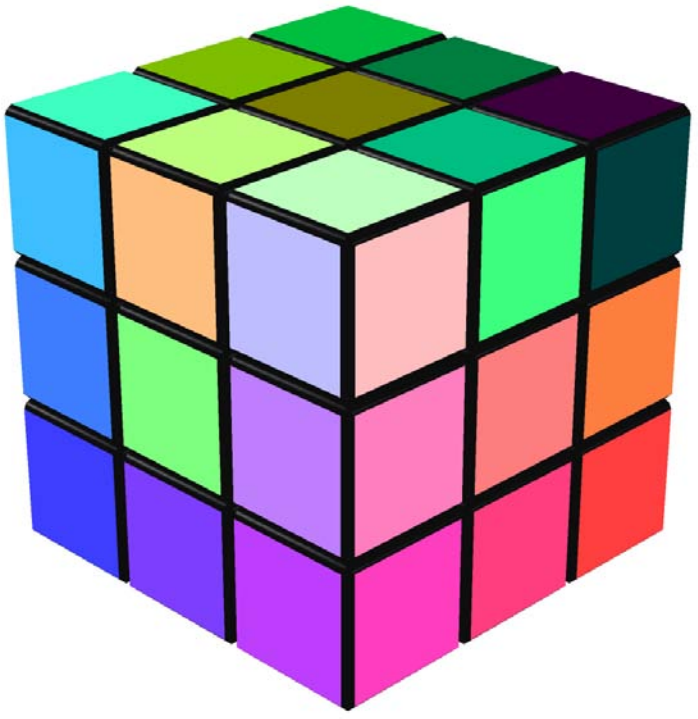


Setup Alg.	CR' D2 B R' U D2 R D L B D2 B U' L U B' L' B L B' U' B U D' B' D2 B2 D' B' D' B D L B2 L'
Incremental Alg.	MF MR MF' MR'

To move centers, it is better to use shorter center-swap algorithms described in: One-Hand Clock Cube Design.

Center + One Edge Move



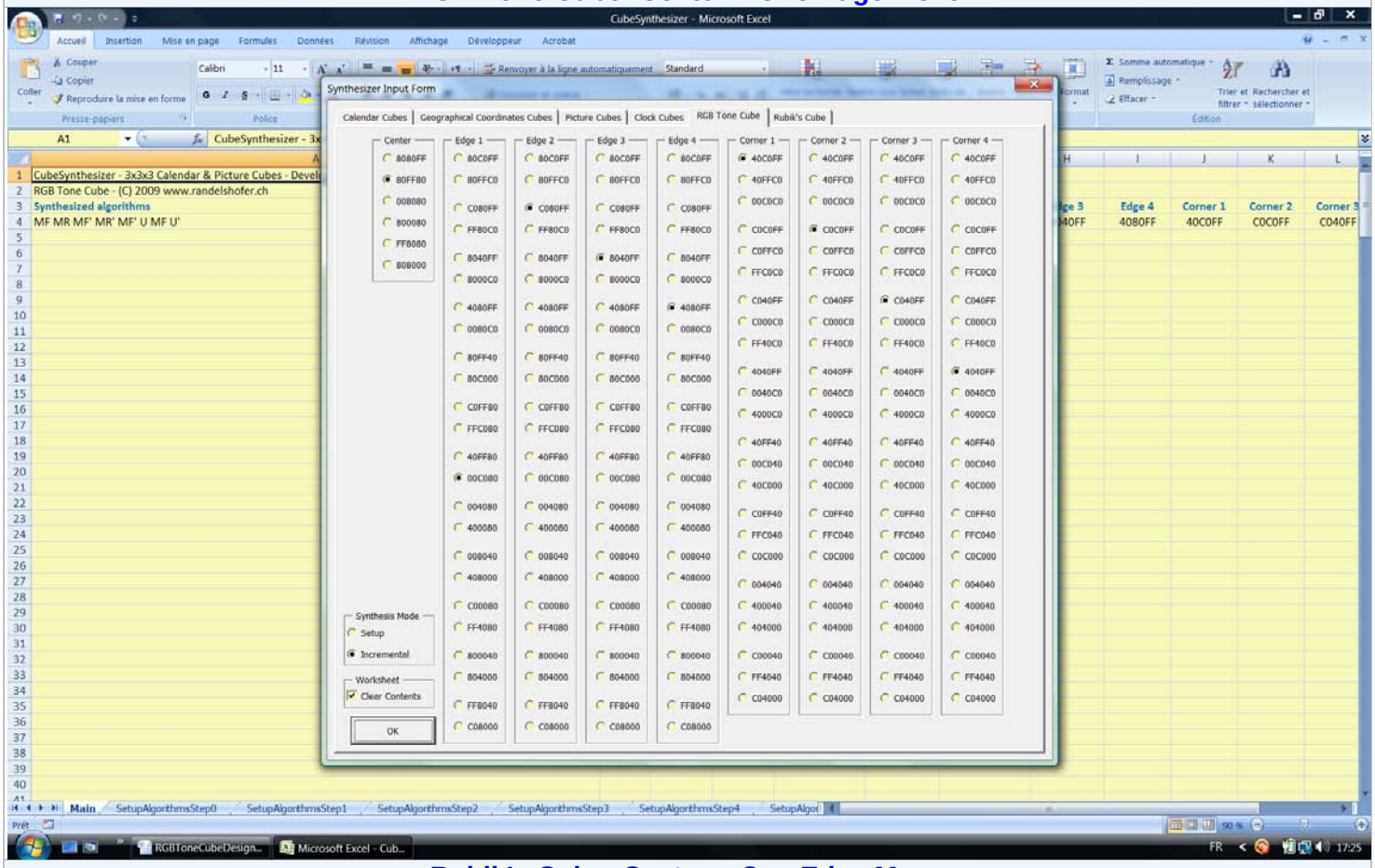


Setup Alg.	CR' R U D L B D' L' B' D' R B2 R'
Incremental Alg.	MF MR MF' MR' MF U' MF' U

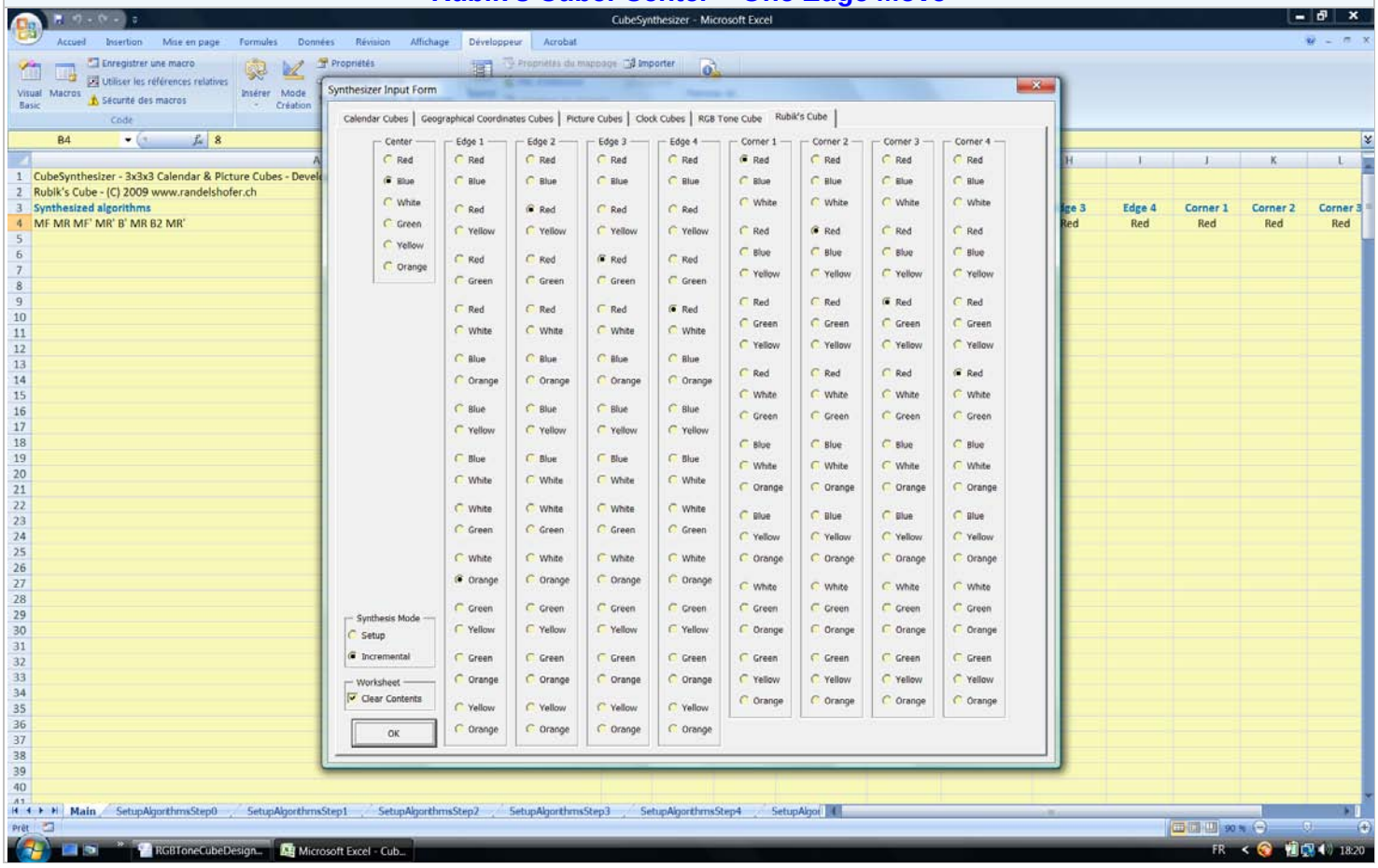
Incremental algorithms are generally shorter than Setup algorithms, if only a few cubies are to be moved.

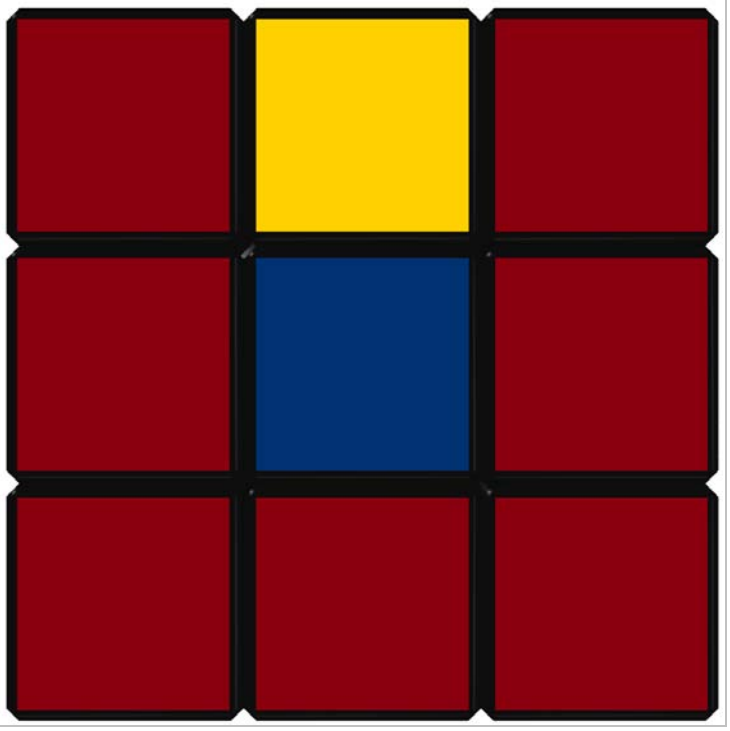
Synthesizing Cube Algorithms with CubeSynthesizer

RGB Tone Cube: Center + One Edge Move



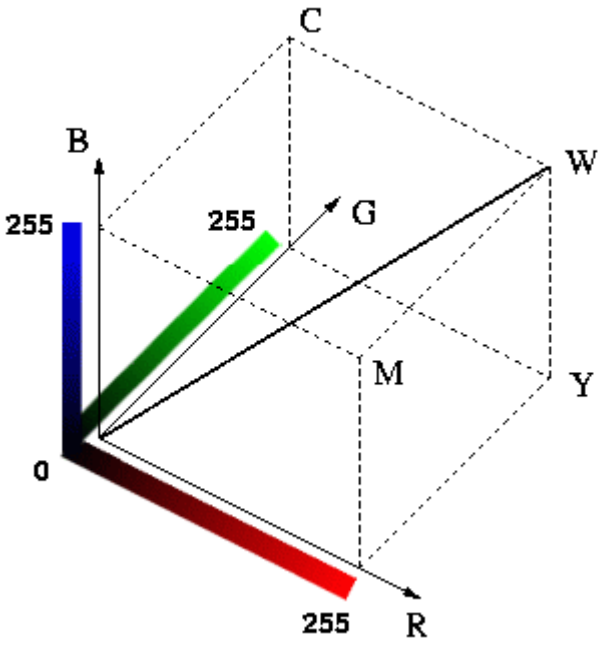
Rubik's Cube: Center + One Edge Move



Rubik's Cube Picture	
Picture	**Example of Synthesized Front Face**
	

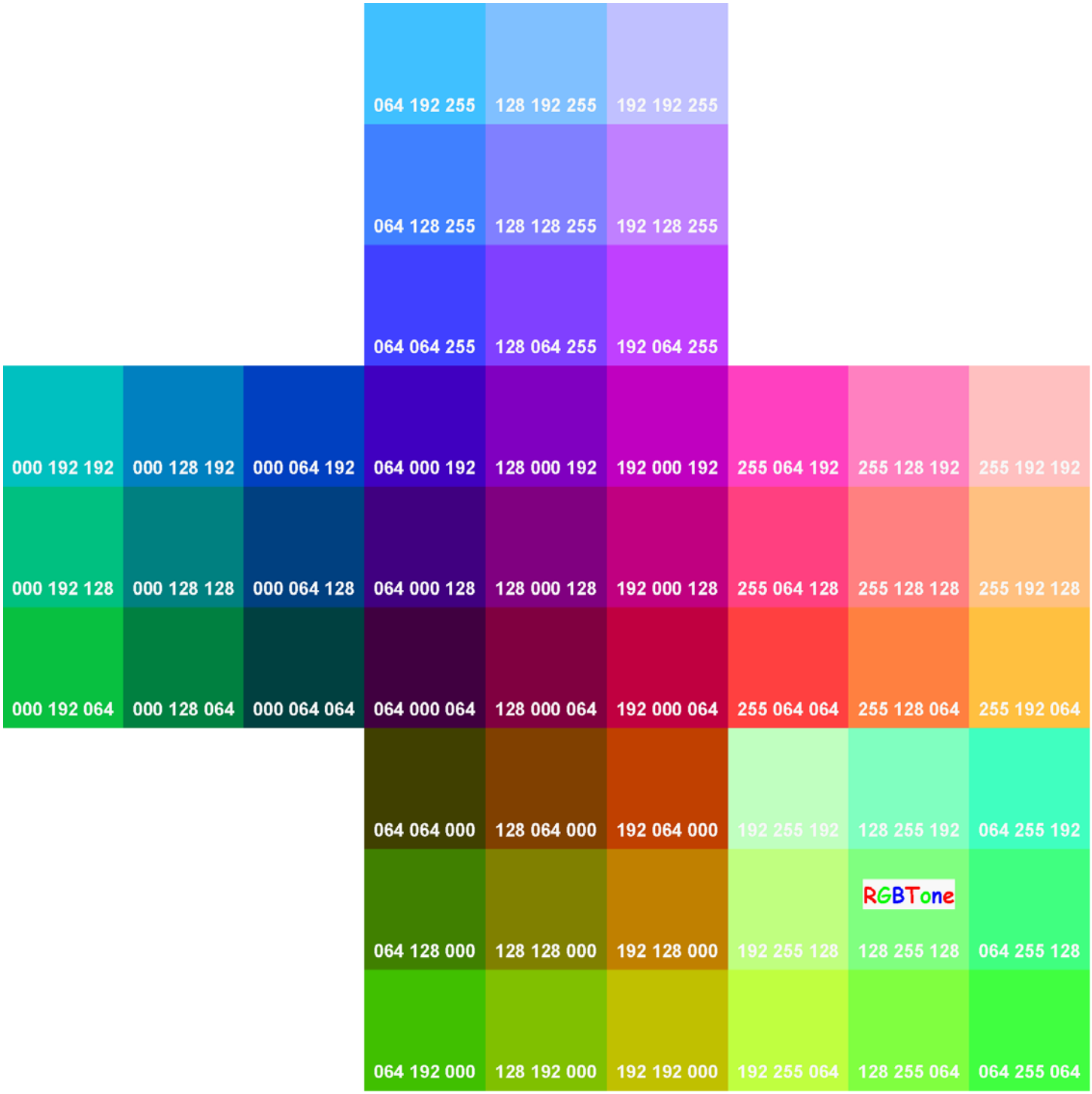
Cube	Numbers on Red, Green or Blue axes								
3x3x3	0		64		128		192		255
6x6x6	0	51		102		153		204	255
7x7x7	0	32	64	96	128	160	192	224	255

Cube Faces & Color Planes



R: red
G: green
B: blue
C: cyan
M: magenta
Y: yellow
W: white

F	Green	0
U	Blue	255
L	Red	0
D	Blue	0
R	Red	255
B	Green	255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192 192 255
064 128 255
128 128 255
192 128 255
064 064 255
128 064 255
192 064 255
000 192 192
000 128 192
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064 000 192
128 000 192
192 000 192
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000 192 128
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128 000 128
192 000 128
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255 128 128
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192 000 064
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255 192 064
064 064 000
128 064 000
192 064 000
192 255 192
128 255 192
064 255 192
064 128 000
128 128 000
192 128 000
192 255 128
RGBTone
128 255 128
064 255 128
064 192 000
128 192 000
192 192 000
192 255 064
128 255 064
064 255 064

032 224 255	064 224 255	096 224 255	128 224 255	160 224 255	192 224 255	224 224 255
032 192 255	064 192 255	096 192 255	128 192 255	160 192 255	192 192 255	224 192 255
032 160 255	064 160 255	096 160 255	128 160 255	160 160 255	192 160 255	224 160 255
032 128 255	064 128 255	096 128 255	128 128 255	160 128 255	192 128 255	224 128 255
032 096 255	064 096 255	096 096 255	128 096 255	160 096 255	192 096 255	224 096 255
032 064 255	064 064 255	096 064 255	128 064 255	160 064 255	192 064 255	224 064 255
032 032 255	064 032 255	096 032 255	128 032 255	160 032 255	192 032 255	224 032 255

000 224 224	000 192 224	000 160 224	000 128 224	000 096 224	000 064 224	000 032 224	032 000 224	064 000 224	096 000 224	128 000 224	160 000 224	192 000 224	224 000 224	255 032 224	255 064 224	255 096 224	255 128 224	255 160 224	255 192 224	255 224 224
000 224 192	000 192 192	000 160 192	000 128 192	000 096 192	000 064 192	000 032 192	032 000 192	064 000 192	096 000 192	128 000 192	160 000 192	192 000 192	224 000 192	255 032 192	255 064 192	255 096 192	255 128 192	255 160 192	255 192 192	255 224 192
000 224 160	000 192 160	000 160 160	000 128 160	000 096 160	000 064 160	000 032 160	032 000 160	064 000 160	096 000 160	128 000 160	160 000 160	192 000 160	224 000 160	255 032 160	255 064 160	255 096 160	255 128 160	255 160 160	255 192 160	255 224 160
000 224 128	000 192 128	000 160 128	000 128 128	000 096 128	000 064 128	000 032 128	032 000 128	064 000 128	096 000 128	128 000 128	160 000 128	192 000 128	224 000 128	255 032 128	255 064 128	255 096 128	255 128 128	255 160 128	255 192 128	255 224 128
000 224 096	000 192 096	000 160 096	000 128 096	000 096 096	000 064 096	000 032 096	032 000096	064 000 096	096 000 096	128 000 096	160 000 096	192 000 096	224 000 096	255 032 096	255 064 096	255 096 096	255 128 096	255 160 096	255 192 096	255 224 096
000 224 064	000 192 064	000 160 064	000 128 064	000 096 064	000 064 064	000 032 064	032 000 064	064 000 064	096 000 064	128 000 064	160 000 064	192 000 064	224 000 064	255 032 064	255 064 064	255 096 064	255 128 064	255 160 064	255 192 064	255 224 064
000 224 032	000 192 032	000 160 032	000 128 032	000 096 032	000 064 032	000 032 032	032 000 032	064 000 032	096 000 032	128 000 032	160 000 032	192 000 032	224 000 032	255 032 032	255 064 032	255 096 032	255 128 032	255 160 032	255 192 032	255 224 032

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032 064 000	064 064 000	096 064 000	128 064 000	160 064 000	192 064 000	224 064 000	224 255 192	192 255 192	160 255 192	128 255 192	096 255 192	064 255 192	032 255 192
032 096 000	064 096 000	096 096 000	128 096 000	160 096 000	192 096 000	224 096 000	224 255 160	192 255 160	160 255 160	128 255 160	096 255 160	064 255 160	032 255 160
032 128 000	064 128 000	096 128 000	128 128 000	160 128 000	192 128 000	224 128 000	224 255 128	192 255 128	160 255 128	128 255 128	096 255 128	064 255 128	032 255 128
032 160 000	064 160 000	096 160 000	128 160 000	160 160 000	192 160 000	224 160 000	224 255 096	192 255 096	160 255 096	128 255 096	096 255 096	064 255 096	032 255 096
032 192 000	064 192 000	096 192 000	128 192 000	160 192 000	192 192 000	224 192 000	224 255 064	192 255 064	160 255 064	128 255 064	096 255 064	064 255 064	032 255 064
032 224 000	064 224 000	096 224 000	128 224 000	160 224 000	192 224 000	224 224 000	224 255 032	192 255 032	160 255 032	128 255 032	096 255 032	064 255 032	032 255 032