

German Calendar Cube Design 2

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WebSites	http://www.mementoslangues.fr/	http://www.randelshofer.ch/

Introduction

A **German Calendar Cube** is a 3x3x3 **Rubik's Cube** used as a **German Calendar**. There are **Virtual Cubes** that can be *virtually* rotated and twisted on a computer screen and **Real Cubes** that can only be *physically* rotated and twisted by hand. A **Texture** is laid down on a Virtual Cube whereas real **Stickers** are stuck down on a Real Cube. A German Calendar Cube is designed by placing letters and numerals on a texture which is then laid down on a Virtual Cube (see <http://www.randelshofer.ch/> for more details). The date of the day can be displayed on a *selected* Cube Face by rotating and twisting some parts of the Cube. When this has been achieved, we say that the Cube has been *solved*. The following example shows the *initial* state of the Cube (Monday, January 1).

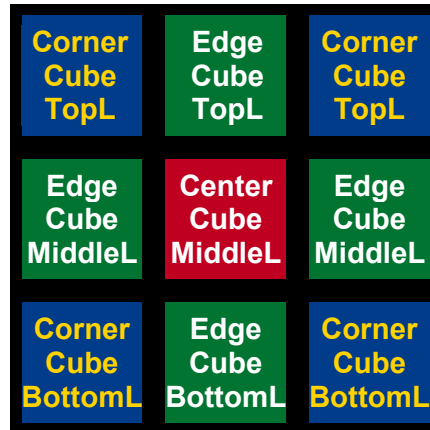
Virtual German Calendar Cube 2	
<p>German Calendar Cube 2 Texture</p>	<p>Virtual German Calendar Cube 2</p>
<p>Download CubeTwister from: http://www.randelshofer.ch/</p>	

Design Features

In this design, Months are displayed as 3 letters on **Top Layer**, weekdays as 3 letters on **Middle Layer** and days as numbers on **Bottom Layer**.

Terminology

In a 3x3x3 **Rubik's Cube**, there are 8 *Corner Cubes*, 12 *Edge Cubes*, 6 *Center Cubes* and 6 *Cube Faces*. There are also 4 Corner Cube faces, 4 Edge Cube faces and 1 Center Cube face *per Cube Face*, as shown below.



There are 1 face per Center Cube, 2 faces per Edge Cube and 3 faces per Corner Cube.

There are also 3 horizontal *Layers* called *Top*, *Middle* and *Bottom Layers*.

Cube Lexicon		
English	Français	Deutsch
Cube	Cube	Würfel
cube, cube	cube, petit cube	Würfeteil, Teil des Würfels
face	face	Seite, Seitenfläche
front face	face avant	vordere Seite, vorne
back face	face arrière	hintere Seite, hinten
left face	face gauche	linke Seite, links
right face	face droite	rechte Seite, rechts
top face	face supérieure	obere Seite, oben
bottom face	face inférieure	untere Seite, unten
sticker	étiquette (autocollante), plaquette	Kleber, Farbkleber
tile	tuile, plaquette	Plättchen, Farbplättchen
center cube, center	cube central, centre	Mittelwürfel, Mittelstein, Mitte
edge cube, edge	cube-arête, arête	Kantenwürfel, Kantenstein, Kante
corner cube, corner	cube de coin, coin	Eckwürfel, Eckstein, Ecke
layer	couronne	Schicht, Scheibe
top layer	couronne supérieure	obere Schicht, obere Scheibe
middle layer	couronne intermédiaire	mittlere Schicht, mittlere Scheibe, Mittelschicht, Mittelscheibe
bottom layer	couronne inférieure	untere Schicht, untere Scheibe
orientation, direction	orientation	Orientierung
to solve	résoudre	lösen, zusammen drehen
to twist	pivoter	drehen
to rotate	tourner, effectuer une rotation	drehen
clockwise	dans le sens horaire	im Uhrzeigersinn
anticlockwise, counter-clockwise	dans le sens anti-horaire	im Gegenuhrzeigersinn

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German Calendar

German Calendar				
Months			Weekdays	
English	German		English	German
January	<u>JAN</u> uar	Januar	Monday	<u>MON</u> tag
February	<u>FEB</u> ruar	Februar	Tuesday	<u>DIEN</u> tag
March	<u>MAE</u> Rz	März	Wednesday	<u>MIT</u> woch
April	<u>APR</u> il	April	Thursday	<u>DON</u> nerstag
May	<u>MAI</u>	Mai	Friday	<u>FRE</u> itag
June	<u>JUN</u> i	Juni	Saturday	<u>SAM</u> stag
July	<u>JUL</u> i	Juli	Sunday	<u>SON</u> ntag
August	<u>AUG</u> ust	August		
September	<u>SEP</u> tember	September		
October	<u>OKT</u> ober	Oktober		
November	<u>NOV</u> ember	November		
December	<u>DEZ</u> ember	Dezember		
8 letters on Top Left corner cubes (Months)			J F M A S O N D	
6 letters on Top Center edge cubes (Months)			A E P U K O	
10 letters on Top Right corner cubes (Months)			N B R I L G P T V Z	
4 letters on Middle Left edge cubes (Days)			M D F S	
4 letters on Middle Center cubes (Days)			O I R A	
4 letters on Middle Right edge cubes (Days)			N E T M	

Cube Layout

In this design, months are displayed on **Top Layer**, weekdays on **Middle Layer** and days on **Bottom Layer**.

Top Layer Layout

Top Layer (Months)								
<u>JAN</u> uary (January)			<u>AUG</u> ust (August)			<u>DEZ</u> ember (December)		
J	A	N	A	U	G	D	E	Z

Months on **Top Layer** are sorted out as follows:

- 1- 8 **Top Left** weekday letters on corner cubes: J, F, M, A, S, O, N, D
- 2- 6 **Top Center** weekday letters on edge cubes: A, E, P, U, K, O
- 3- 10 **Top Right** weekday letters on corner cubes: N, B, R, I, L, G, P, T, V, Z

Months letters are now combined on corner and edge cubes:

- 1- 3 **Top Left** corner cubes: (J,F,M), (A,S,O), (N,D,N_TopRight)
- 2- 3 **Top Center** edge cubes: (A,E), (P,U), (K,O)
- 3- 3 **Top Right** corner cubes: (B,R,I), (L,G,P), (T,V,Z)

Note 1: 'N', 'D' and 'N_TopRight' can be placed on a same corner cube, because they are not used at the same time.

So, now there are 2 corner and 9 edge cubes left that can be used for the 2 remaining layers.

Middle Layer Layout



Weekdays on the Middle Layer are sorted out as follows:

- 1- 4 **M**iddle **L**eft letters on edge cubes: M, D, F, S
- 2- 4 **M**iddle **C**enter letters on center cubes: O, I, R, A
- 3- 4 **M**iddle **R**ight letters on edge cubes: N, E, T, M

Letters are now combined on edge cubes:

- 1- 2 **M**iddle **L**eft edge cubes: (M,D), (F,S)
- 2- 2 **M**iddle **R**ight edge cubes: (N,E), (T,M)

So, now there are 2 corner and 5 edge cubes left that can be used for the Bottom Layer.

Bottom Layer Layout



Numerals on the Bottom Layer are sorted out as follows:

- 1- 4 **B**ottom **L**eft numeral plus 2 blanks on corner cubes: 0,1, 2, 3, 4, blank, blank
- 2- 10 **B**ottom **C**enter numerals on edge cubes: 0, 1, 2, 3, 4, 5, 6, 7, 8, 9

Numerals are now combined on corner and edge cubes:

- 1- 2 **B**ottom **L**eft corner cubes: (blank,0,1), (blank,2,3)
- 2- 5 **B**ottom **C**enter edge cubes: (0,1), (2,3), (4,5), (6,7), (8,9)

Note 2: The first 9 days of a month can be displayed either as '01' or as '1', i.e. without a '0'.

Layout Table		
Reading from Left to Right		
Top Left – Corner cubes J, F, M, A, S, O, N, D	Top Center – Edge cube A, E, P, U, K, O	Top Right – Corner cubes N, B, R, I, L, G, P, T, V, Z
Middle Left – Edge cubes M, D, F, S	Middle Center – Center cubes O, I, R, A	Middle Right – Edge cubes N, E, T, M
Bottom Left – Corner cubes blank, 0, 1, 2, 3	Bottom Center – Edge cubes 0, 1, 2, 3, 4, 5, 6, 7, 8, 9	Bottom Right – Corner cube blank

German Calendar Cube – Examples

Monday, June 30

J	U	N
M	O	N
3	0	

Tuesday, October 8

O	K	T
D	I	E
	8	

Wednesday, December 24

D	E	Z
M	I	T
2	4	

Thursday, July 31

J	U	L
D	O	N
3	1	

Friday, August 1

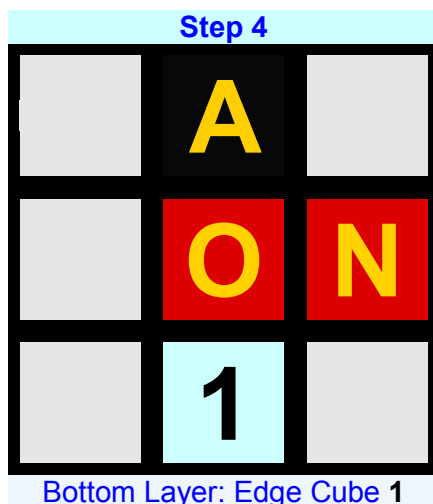
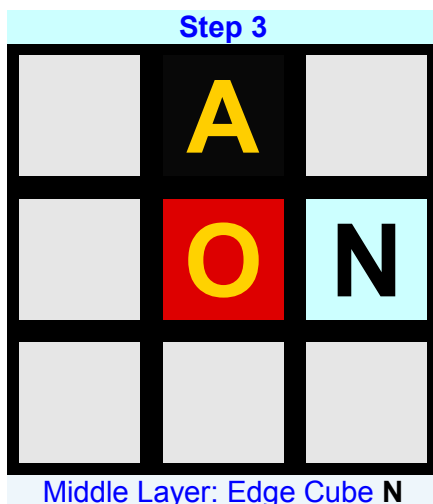
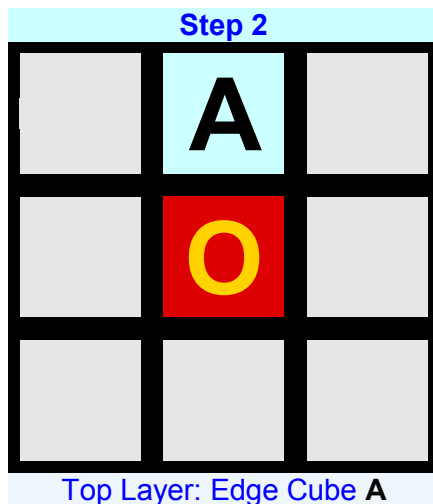
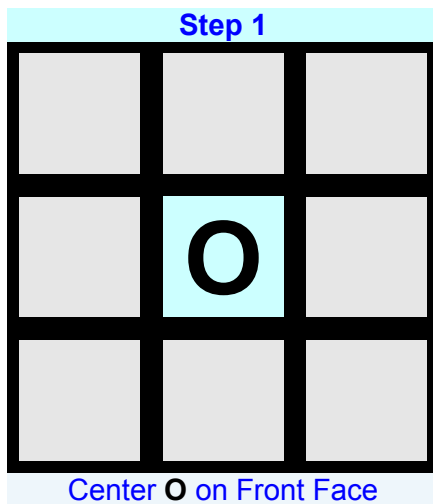
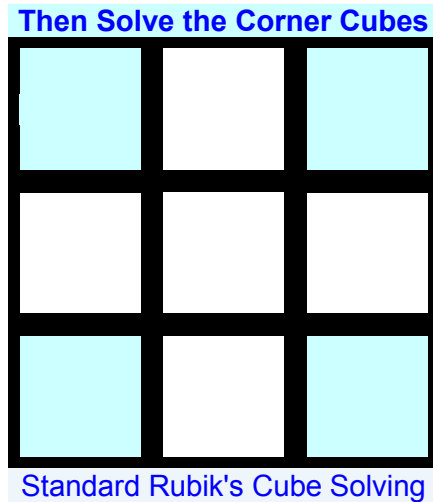
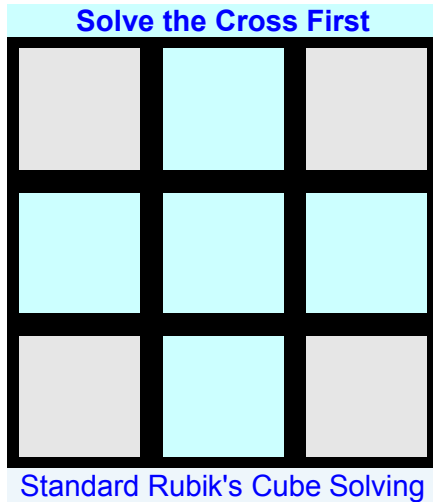
A	U	G
F	R	E
	1	

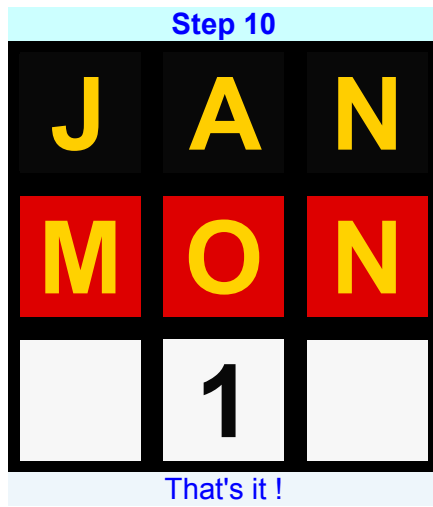
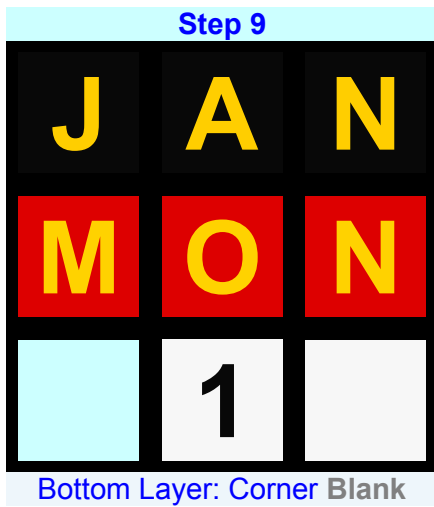
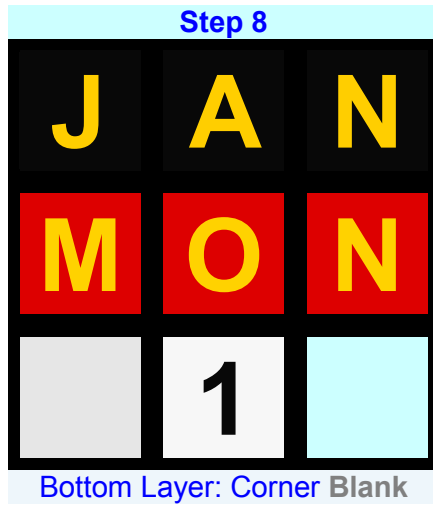
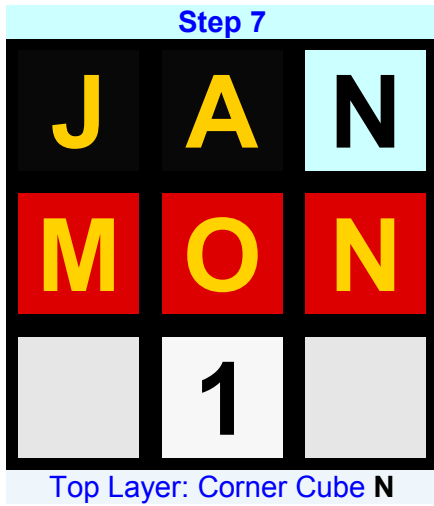
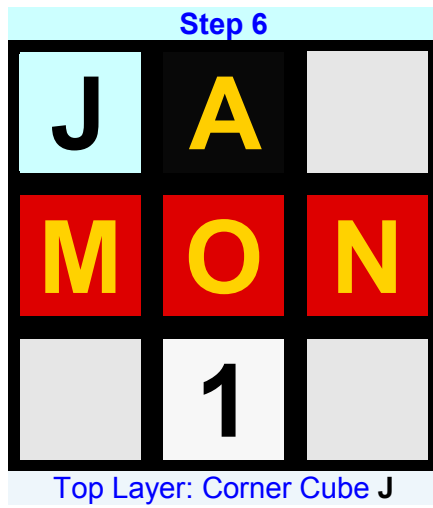
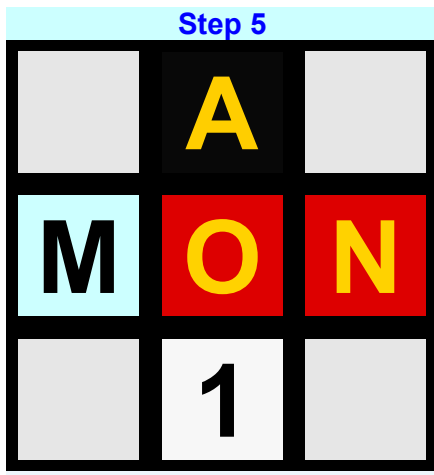
Saturday, August 2

A	U	G
S	A	M
	2	

Solving a German Calendar Cube Step by Step

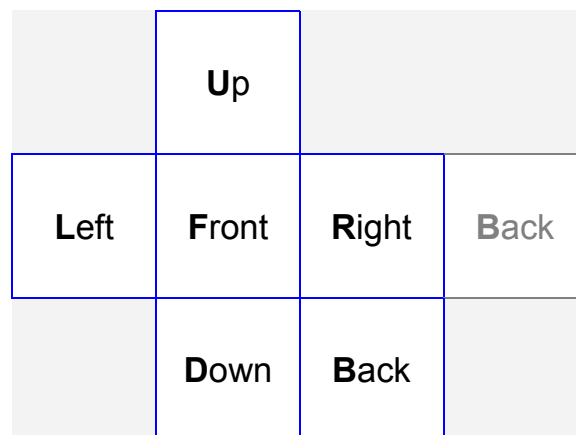
In this example, a step by step solving process is applied to the German Calendar Cube, just described before. Note that we only need to solve a *single* Face out of six. We will solve a Face for Monday, January 1.





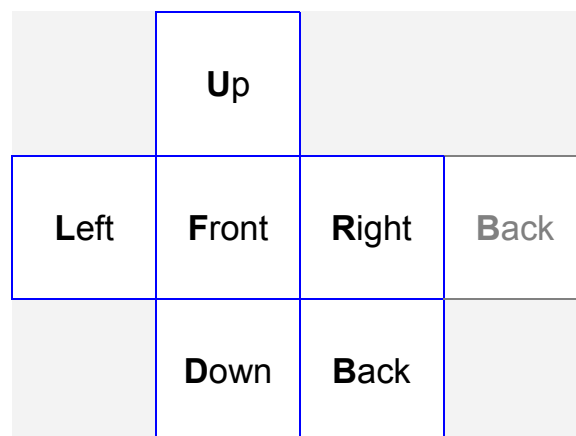
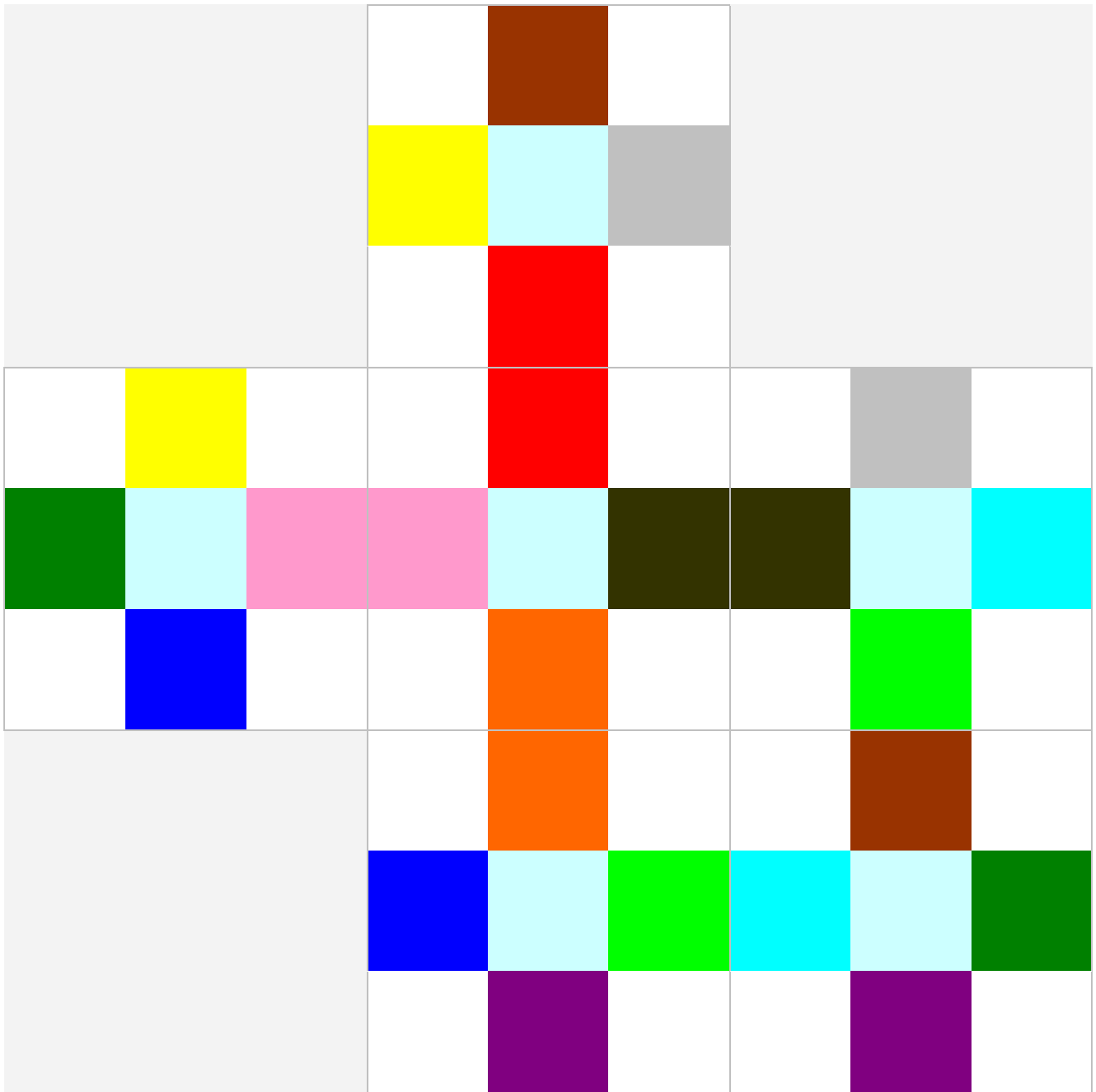
Corner Cubes Final Check

There are 8 Corner Cubes and 3 faces per Corner Cube. In the diagram below, each Corner Cube is displayed in 8 different colors and with the same color applied to each of its 3 faces. This diagram can be used as a convenient *visual aid* to check Design Rules (DRC).



Edge Cubes Final Check

There are 12 Edge Cubes and 2 faces per Edge Cube. In the diagram below, each Edge Cube is displayed in 12 different colors and with the same color applied to each of its 2 faces. This diagram can be used as a convenient *visual aid* to check Design Rules (DRC).



Texture Template

This is a texture template that can be printed out and used for writing down numbers and letters by hand *prior to* texture design. All is needed are pencil, rubber...and time.

