

Turkish Calendar Cube Design

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

Introduction

The Magic Cube was invented in 1974 by Hungarian-born **Ernő Rubik** and was later called the **Rubik's Cube**. An English calendar cube was subsequently invented and calendar cubes have been designed in many other languages since then. A **Turkish Calendar Cube** is a 3x3x3 **Rubik's Cube** used as a **Turkish 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 Turkish Calendar Cube is designed by placing letters, numerals and words on a texture which is then laid down on a Virtual Cube (see <http://www.randelshofer.ch/>).

Turkish Language – Useful Links

http://en.wikipedia.org/wiki/Turkish_language

<http://www.turkishlanguage.co.uk/>

<http://www.mementoslangues.fr/Arabe/Langue/MotsArabesMotsTurcs-A4.pdf>

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 01).

Virtual Turkish Calendar Cube

Turkish Calendar Cube

Original design 2008
by André Boulouard
and Walter Randelshofer

Cum a
ar
Çarşamba
L

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M Perşembe Pazartesi I Salı Y

2 1 0 1 2 3 5

E E Σ O C A B R H

Ş V R Z 3 D

U
L F R B
D B

- 4 K 7 6 8

A Ğ T N Y K



Turkish Calendar Cube Texture

Virtual Turkish Calendar Cube

Design Particularities

The sum of left- and right-hand letters of the 12 Turkish abbreviated months equals 19 and the number of center letters equals 9, making this calendar cube as difficult to design as the Spanish calendar cube.

The Turkish calendar cube design is based on the design of the Spanish calendar cube invented by Alfonso Pérez Arnal and introduced in the Spanish forum ▶ [El Cubo de Rubik de la A a la Z](#).

Turkish Calendar Cube Design

Turkish Calendar

Turkish Calendar				
Months		Weekdays		
English	Turkish	English	Turkish	
January	<u>O</u> CAk	Ocak	Monday	Pazartesi (günü)
February	<u>S</u> UBat	Şubat	Tuesday	Salı (günü)
March	<u>M</u> ARt	Mart	Wednesday	Çarşamba (günü)
April	<u>N</u> ISan	Nisan	Thursday	Perşembe (günü)
May	<u>M</u> AYıs	Mayıs	Friday	Cuma (günü)
June	<u>H</u> AZıran	Haziran	Saturday	Cumartesi (günü)
July	<u>T</u> EMmuz	Temmuz	Sunday	Pazar (günü)
August	<u>A</u> ĞUstos	Ağustos		
September	<u>E</u> YLül	Eylül		
October	<u>E</u> Kİm	Ekim		
November	<u>K</u> ASım	Kasım		
December	<u>A</u> RAlık	Aralık		
9 letters on Bottom Left corner cubes		O Ş M N H T A E K		
9 letters on Bottom Center cubes		C A I E Ğ Y K R U		
10 letters on Bottom Right corner cubes		A B R S Y Z M U L I		
'U' Bottom Center is a letter placed on an edge cube common to both Bottom and Middle Layers .				

Cube Layout

Weekdays are displayed on **Top Layer**, days of the month on **Middle Layer** and months on **Bottom Layer**.

Top Layer Layout

Top Layer: Weekdays								
Pazartesi (Monday)			Salı (Tuesday)			Çarşamba (Wednesday)		
Paz	artesi			Salı			Çarşamba	
Perşembe (Thursday)			Cuma (Friday)			Cumartesi (Saturday)		
	Perşembe		Cum	a		Cum	artesi	
Pazar (Sunday)								
Paz	ar							

Weekdays on the **Top Layer** are sorted out as follows:

- 1- 2 **Top Left** group of letters and 1 blank: Cum, Paz, blank_**TR**
- 2- 7 **Top Center** groups of letters: artesi, Salı, Çarşamba, Perşembe, a, ar
- 3- 2 blanks on 2 corner cubes from the **Bottom Layer**: blank_**TL/TR**, blank_**TL/TR** (see **Bottom Layer**) *

Weekdays are now combined on corner and edge cubes:

- 1- 1 **Top Left** corner cube: (Cum,Paz,blank_**TR**)
- 2- 3 **Top Center** edge cubes: (artesi,ar), (Salı,Çarşamba), (Perşembe,a)

So, now there are 7 corner and 9 edge cubes left that can be used for the 2 remaining layers.

Middle Layer Layout



Numbers on the **Middle Layer** are sorted out as follows:

- 1- 4 **Middle Left** numbers, 1 blank, 1 **Bottom Center** letter on edge cubes: 0, 1, 2, 3, blank_**ML/MR**, **U_BC**
- 2- 7 **Middle Center** numbers on center cubes: 0, 1, 2, 3, 4, 6/9
- 3- 3 **Middle Right** numbers, 1 blank on edge cubes: 5, 7, 8, blank_**ML/MR**

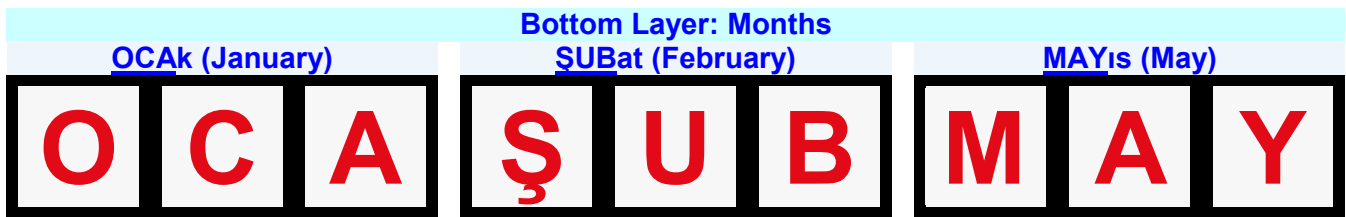
Numbers are now *logically* combined on edge cubes:

- 1- 3 **Middle Left** edge cubes: (0,1), (2,blank_**ML/MR**), (3,**U_BC**)
- 2- 2 **Middle Right** edge cubes: (5,7), (8,blank_**ML/MR**)

Note 1: **Bottom Center** letter 'U' is placed on an edge cube common to both **Bottom** and **Middle Layers**. This is the center letter of month **SUBat** (February). There are 28 or 29 days in this month, so there is no need for displaying 30 or 31 days in February. Therefore letter 'U' and number '3' can be placed on a same edge cube.

So, now there are 7 corner and 4 edge cubes left that can be used for the **Bottom Layer**.

Bottom Layer Layout



Letters on the **Bottom Layer** are sorted out as follows:

- 1- 9 **Bottom Left** letters on corner cubes: O, S, M, N, H, T, A, E, K
- 2- 9 **Bottom Center** letters on edge cubes: C, A, I, E, G, Y, K, R, **U_BC**
- 3- 10 **Bottom Right** letters on corner cubes: A, B, R, S, Y, Z, M, U, L, I

Letters are now *logically* combined on corner and edge cubes:

- 1- 3 **Bottom Left** corner cubes: (O,S,M), (N,H,T), (A,E,K)
- 2- 4 **Bottom Center** edge cubes: (C,A), (I,E), (G,Y), (K,R)
- 3- 4 **Bottom Right** corner cubes: (A,B,R), (S,Y,Z), (M,U,blank_**TL/TR**), (L,I,blank_**TL/TR**)

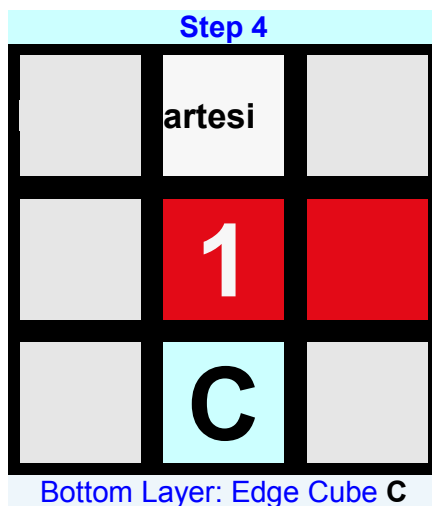
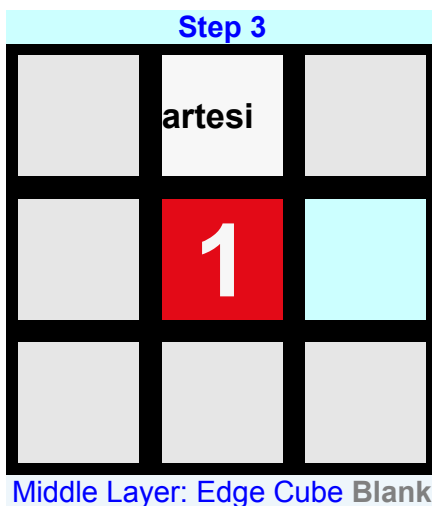
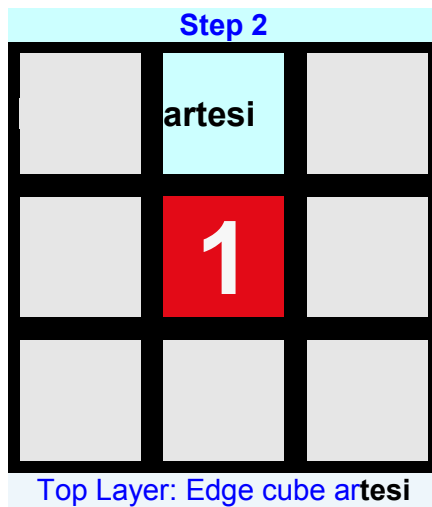
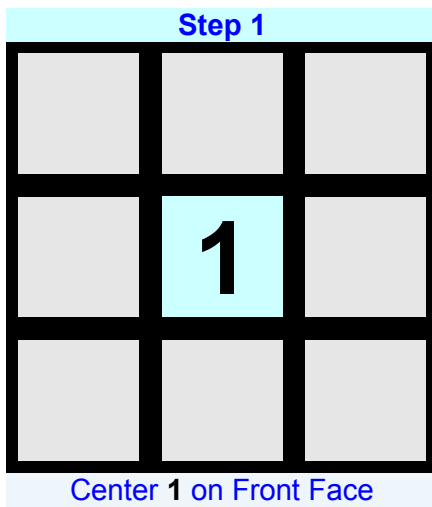
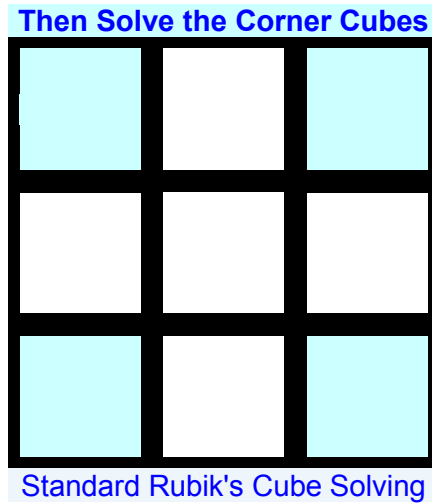
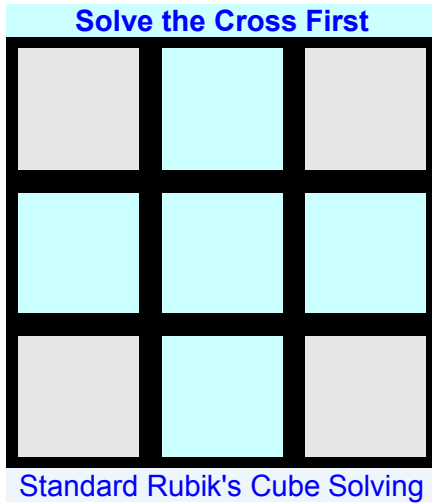
Turkish Calendar Cube – Layout Table

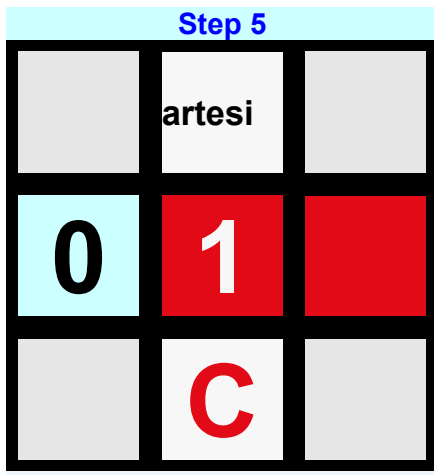
Reading from Left to Right

Top Left – Corner cubes Cum, Paz, blank	Top Center – Edge cube Salı, Çarşamba, Perşembe, a, ar, artesi	Top Right – Corner cube blank
Middle Left – Edge cubes 0, 1, 2, 3, blank	Middle Center – Center cubes 0, 1, 2, 3, 4, 6/9	Middle Right – Edge cubes 5, 7, 8, blank
Bottom Left – Corner cubes O, Ş, M, N, H, T, A, E, K	Bottom Center – Edge cubes C, A, I, E, Ğ, Y, K, R, U	Bottom Right – Corner cubes A, B, R, S, Y, Z, M, U, L, I

Solving a Turkish Calendar Cube Step by Step

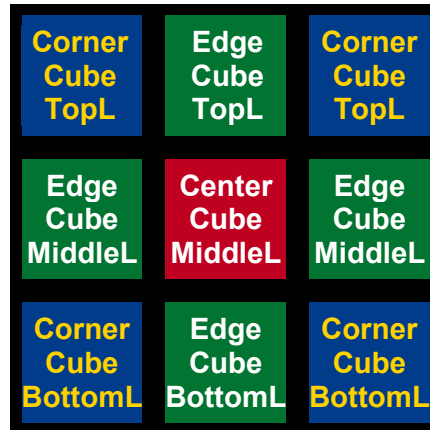
In this example, a step by step solving process is applied to the Turkish Calendar Cube, just described before. Note that we only need to solve a *single* Face out of six. We will solve a Face for Monday, January 01.





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.



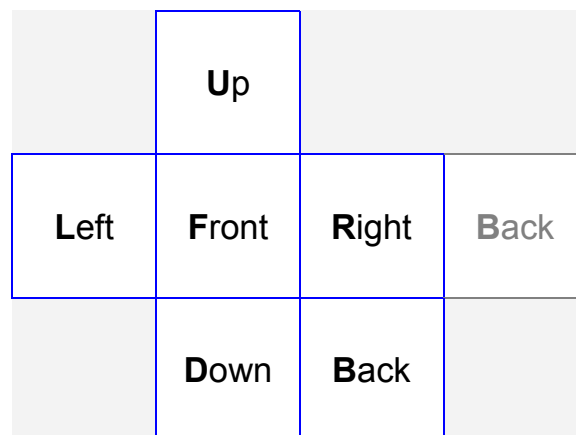
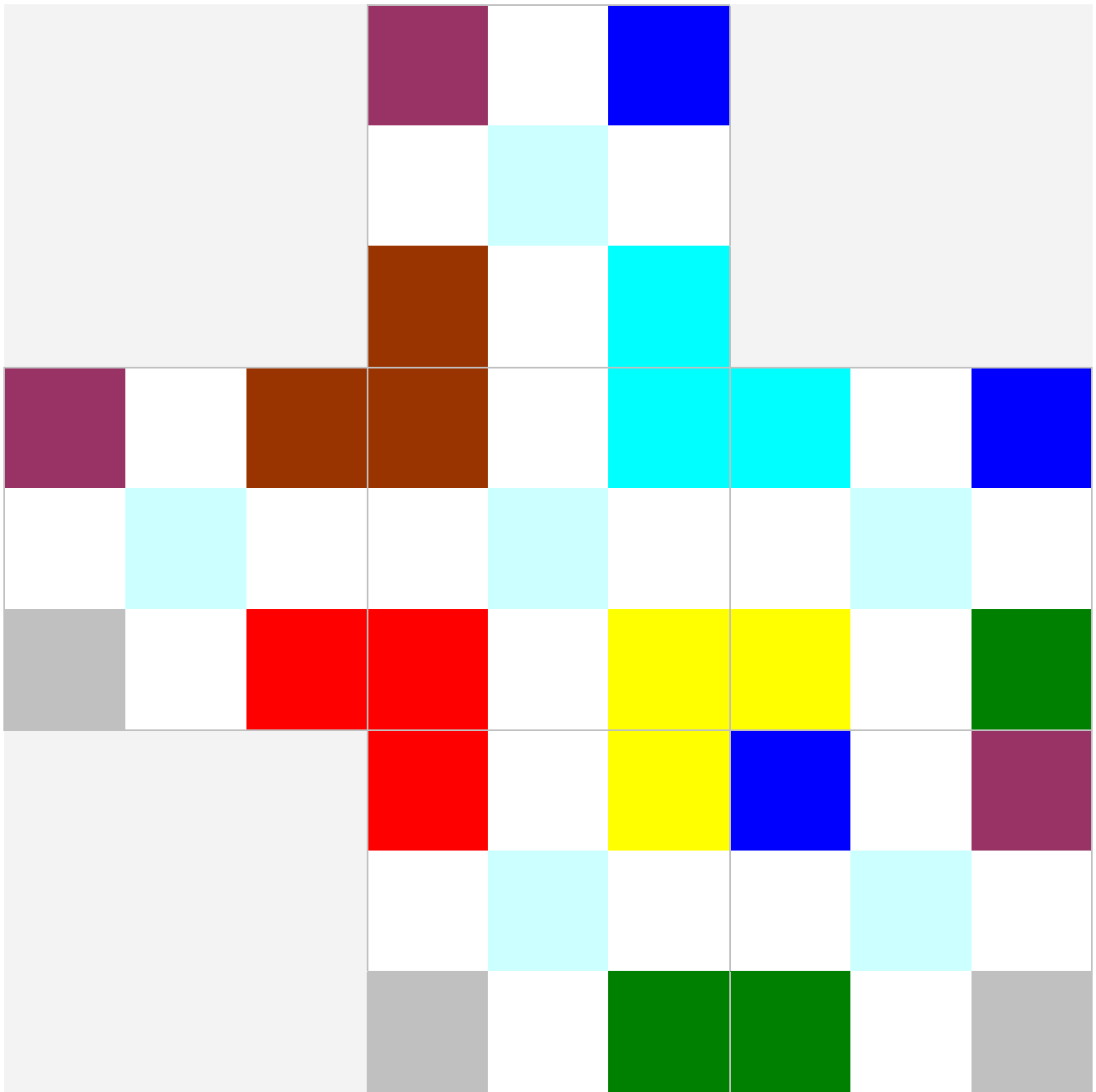
There are 1 face per Center Cube, 2 faces per Edge Cube and 3 faces per Corner Cube.

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

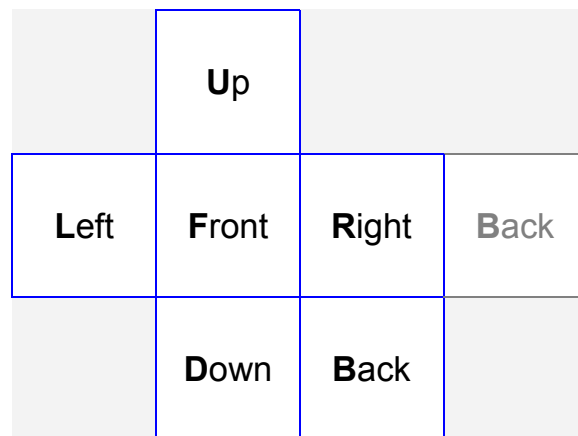
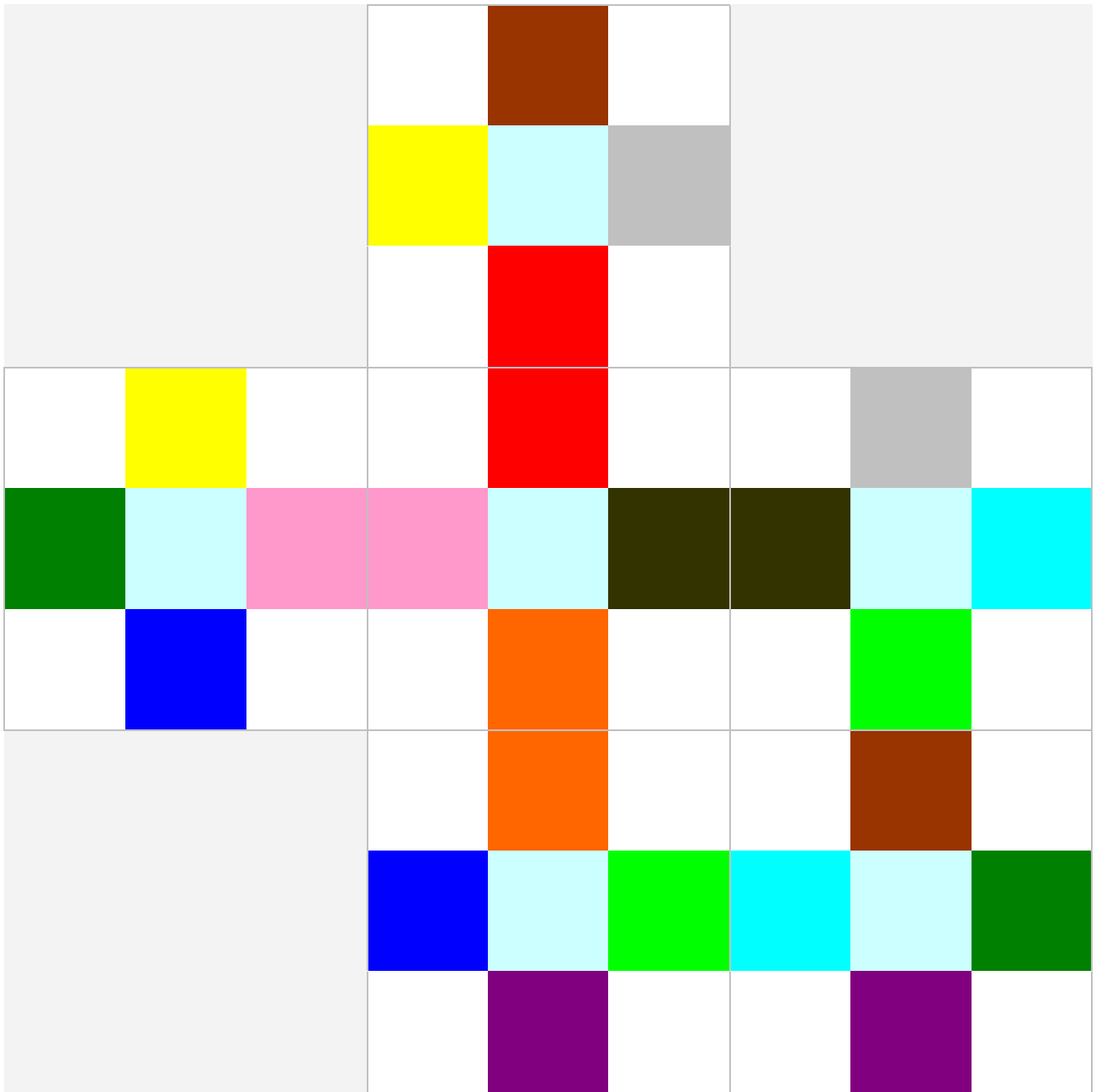
Corner Cubes Final Check

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.

