Polish Calendar Cube Design

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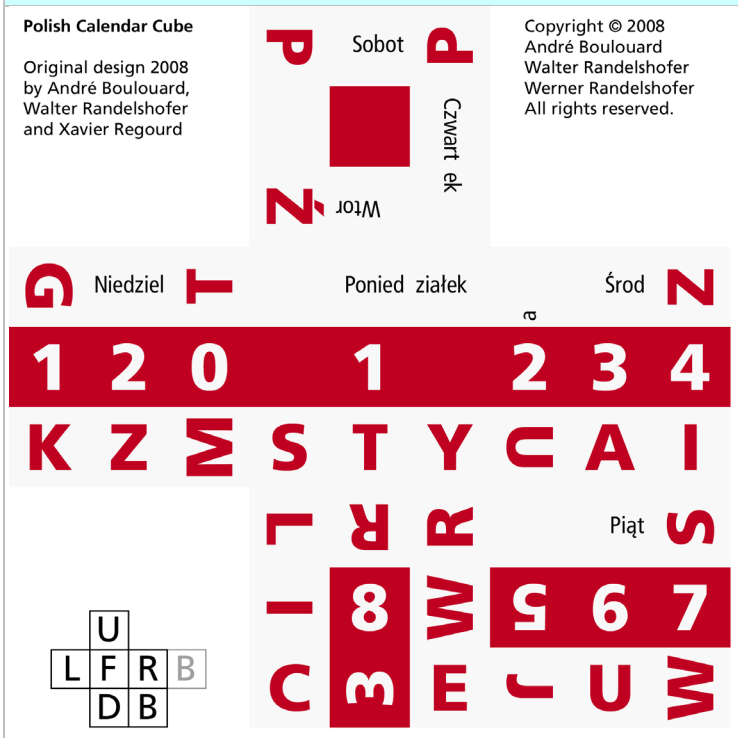
WebSites		http://www.mementoslangues.fr/	http://www.randelshofer.ch/

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 **Polish Calendar Cube** is a 3x3x3 **Rubik's Cube** used as a **Polish 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 Polish 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/).

Polish Language – Useful Links	
http://en.wikipedia.org/wiki/Polish_language	http://en.wikibooks.org/wiki/Basic_Polish_language_course

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 Polish Calendar Cube	
	
Polish Calendar Cube Texture	Virtual Polish Calendar Cube

Design Particularities

Days of the month numbered between 1 and 9 are displayed on the middle layer without a leading '0'. This particular design feature has been found by Walter Randelshofer and Xavier Regourd.

The Polish 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.

Polish Calendar Cube Design

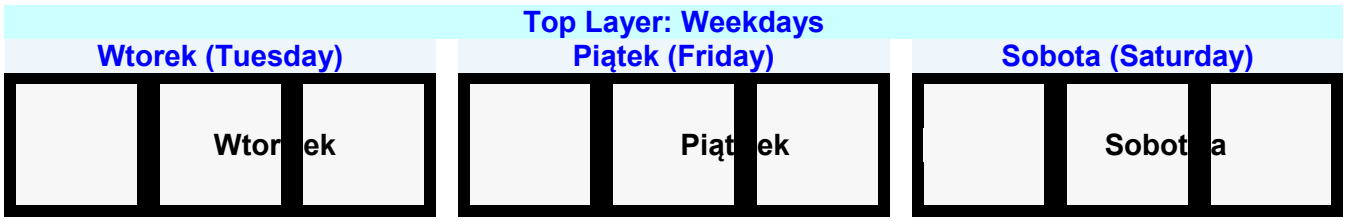
Polish Calendar

Polish Calendar				
Months			Weekdays	
English	Polish		English	Polish
January	STYczeń	Styczeń	Monday	Poniedzialek
February	LUTy	Luty	Tuesday	Wtorek
March	MARzec	Marzec	Wednesday	Środa
April	KWIecień	Kwiecień	Thursday	Czwartek
May	MAJ	Maj	Friday	Piątek
June	CZErwiec	Czerwiec	Saturday	Sobota
July	LIPiec	Lipiec	Sunday	Niedziela
August	SIErpień	Sierpień		
September	WRZesień	Wrzesień		
October	PAŹdziernik	Październik		
November	LIStopad	Listopad		
December	GRUdzień	Grudzień		
8 letters on left-hand corner cubes			S L M K C W P G	
7 letters on edge cubes			T U A W Z I R	
11 letters on right-hand corner cubes			Y T R I J E P Z Ź S U	

Cube Layout

Weekdays are displayed on **T**op **L**ayer, days of the month on **M**iddle **L**ayer and months on **B**ottom **L**ayer.

Top Layer Layout



Weekdays on the **T**op **L**ayer are sorted out as follows:

1- 2 **T**op **L**eft blanks from the **B**ottom **L**ayer: blank_**TL**, blank_**TL** (see **B**ottom **L**ayer)*
2- 7 **T**op **C**enter weekdays parts and 1 blank: Ponied, Wtor, Środ, Czwart, Piąt, Sobot, Niedziel, blank_**TC**
3- 3 **T**op **R**ight weekdays parts: zialek, ek, a

Weekdays are now *logically* combined on corner cubes:

1- 4 **T**op **C**enter edge cubes: (Ponied,Wtor), (Środ,Czwart), (Piąt,Sobot), (Niedziel,blank_**TC**)
2- 1 **T**op **R**ight corner cube: (zialek,ek,a)

* This ensures that there is at least 1 blank on a **T**op **L**eft corner cube.

So, now there are 7 corner and 8 edge cubes left that can be used for the 2 remaining layers.

Middle Layer Layout

Numbers on the **M**iddle **L**ayer are sorted out as follows:

1- 4 **M**iddle **L**eft numbers, 1 blank, 1 **B**ottom **C**enter letter on edge cubes: 0,1, 2, 3, blank_**ML**/**MR**, **U_BC**
2- 6 **M**iddle **C**enter numbers, 1 blank on center cubes: 1, 2, 3, 8, 6/9, blank_**MC**
3- 4 **M**iddle **R**ight numbers, 1 blank on edge cubes: 0, 4, 5, 7, blank_**ML**/**MR**

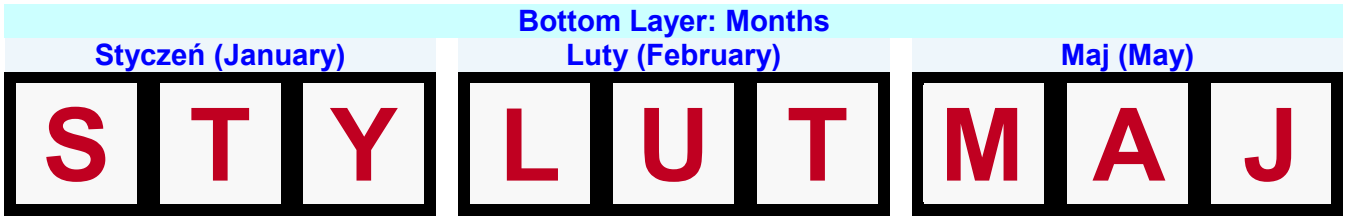
Numbers are now *logically* combined on edge cubes:

1- 3 **M**iddle **L**eft edge cubes: (1,2), (0,blank_**ML**/**MR**), (3,**U_BC**)
2- 2 **M**iddle **R**ight edge cubes: (5,7), (8,blank_**ML**/**MR**)

Note 1: Bottom **C**enter letter '**U**' is placed on an edge cube common to both **B**ottom and **M**iddle **L**ayers. This is the center letter of month L**U**Ty (February). There are only 28/29 days in this month, so there is no need for displaying 30 days in February. Therefore, letter '**U**' and **M**iddle **L**eft number '**3**' can be placed on a same edge cube.

So, now there are 7 corner and 3 edge cubes left that can be used for the Bottom Layer.

Bottom Layer Layout



Letters on the **B**ottom **L**ayer are sorted out as follows:

1- 8 **B**ottom **L**eft letters on corner cubes: S, L, M, K, C, W, P, G
2- 7 **B**ottom **C**enter letters on edge cubes: T, A, W, Z, I, R, **U_BC**
3- 11 **B**ottom **R**ight letters on corner cubes: Y, T, R, I, J, E, P, Z, Ź, U, **S_BR**

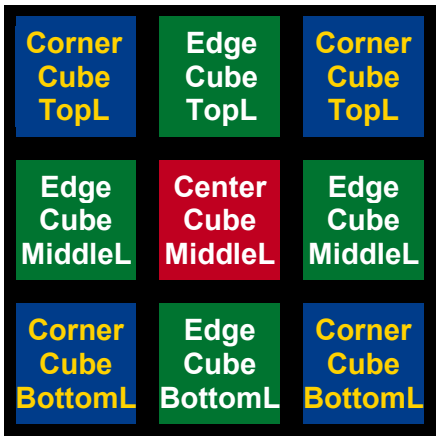
Letters are now combined on corner and edge cubes:

1- 3 **B**ottom **L**eft corner cubes: (S,L,M), (K,C,W), (P,G,**S_BR**)
2- 3 **B**ottom **C**enter edge cubes: (T,R), (A,W), (Z,I)
3- 4 **B**ottom **R**ight corner cubes: (Y,U,R), (I,J,E), (T,Ź,blank_**TL**), (P,Z,blank_**TL**)

Polish Calendar Cube – Layout Table		
Reading from Left to Right		
Top **L**eft – Corner cube	**T**op **C**enter – Edge cubes	**T**op **R**ight – Corner cube
blank	Ponied, Wtor, Środ, Czwart, Piąt, Sobot, Niedziel, blank	zialek, ek, a
Middle **L**eft – Edge cubes	**M**iddle **C**enter – Center cubes	**M**iddle **R**ight – Edge cubes
0, 1, 2, **3**, blank	1, 2, 3, 8, 6/9	0, 4, 5, 7, blank
Bottom **L**eft – Corner cubes	**B**ottom **C**enter – Edge cubes	**B**ottom **R**ight – Corner cubes
S, L, M, K, C, W, P, G	T, A, W, Z, I, R, **U**	Y, T, R, I, J, E, P, Z, Ź, U, **S**

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.



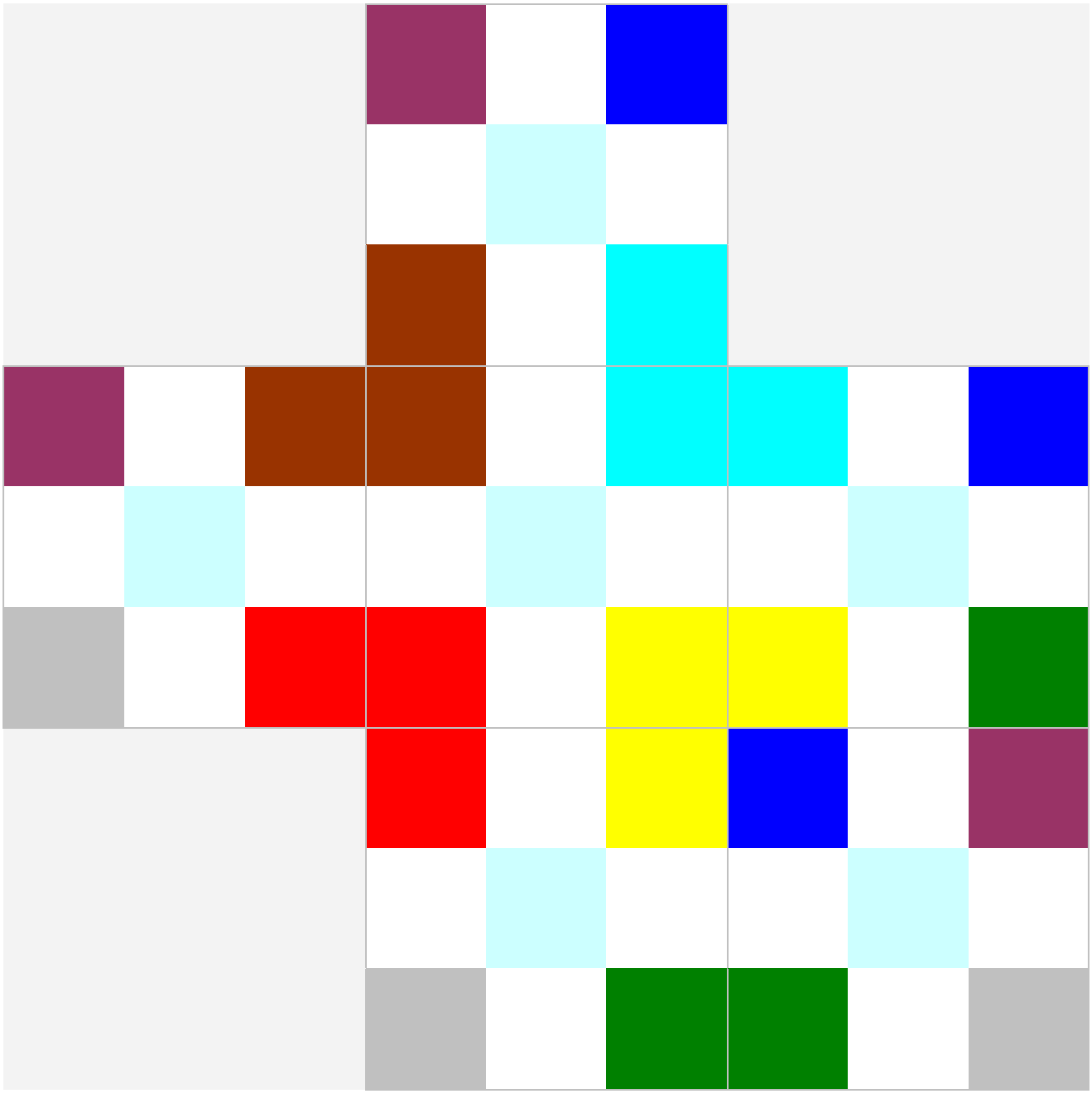
There are 1 face per Center Cube, 2 faces per Edge Cube and 3 faces per Corner Cube.

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

Cube Lexicon		
English	**Français**	**Deutsch**
Cube	Cube	Würfel
cubie, cube	cube, petit cube	Würfelteil, 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

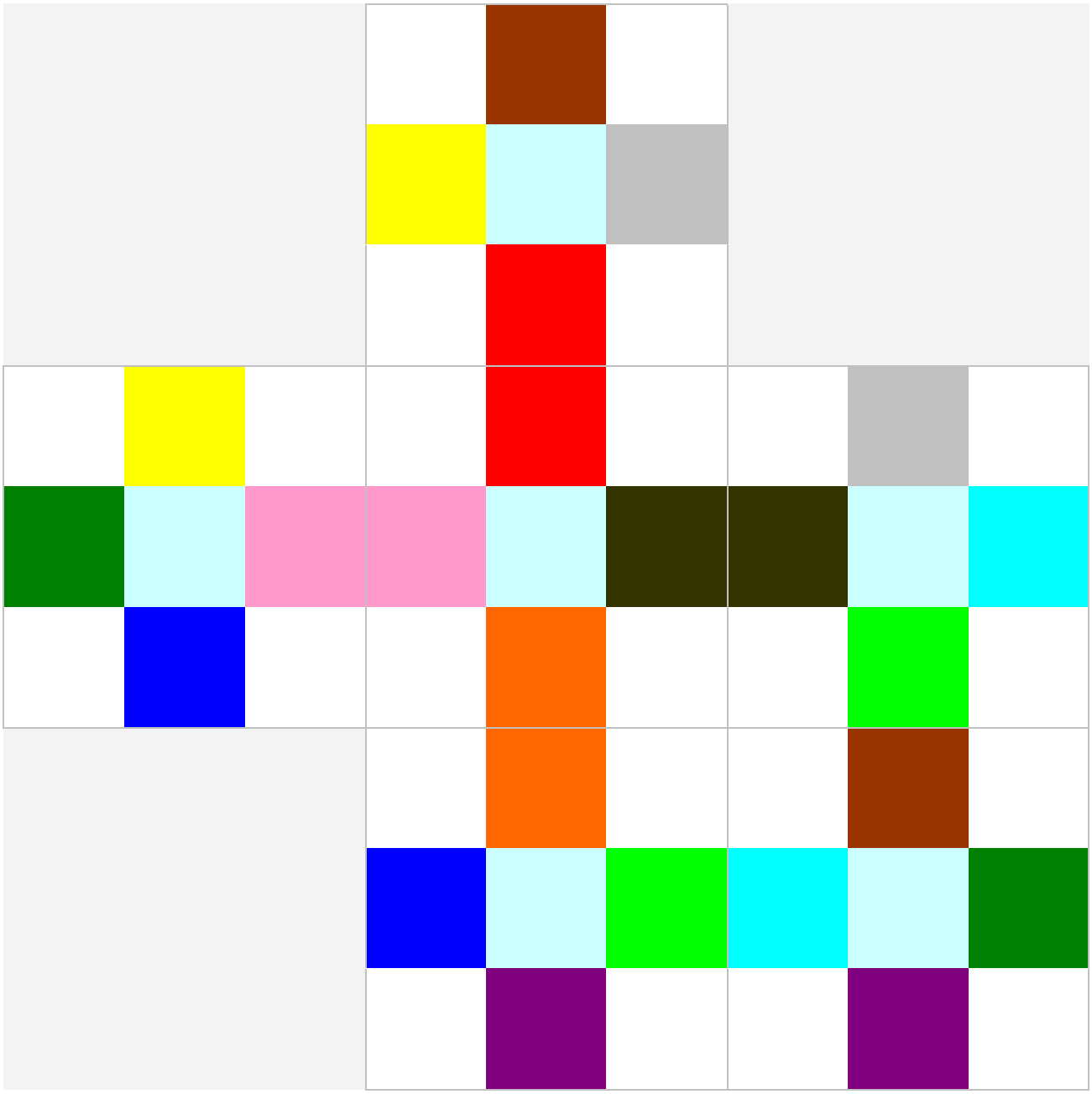
There are 8 Corner Cubes and 3 faces per Corner Cube. In the diagram below, each Corner Cube is displayed in 8 different colors and with the same color applied to each of its 3 faces. This diagram can be used as a convenient *visual aid* to check Design Rules (DRC).



	Up		
Left	**F**ront	**R**ight	**B**ack
	Down	**B**ack	

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).



	Up		
Left	**F**ront	**R**ight	Back
	Down	**B**ack	

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.