Notes on Calendar Construction and Excel

Parts

The moving slider calendar has two parts, which are the base and the slider. Figure 1 show the base with the slider removed. It has a day-of-week table (SWTWTFS) at the top, a window in the middle that displays seven columns of the slider, and a year table at the bottom.

S	M	T	W	T	F	S

Make two slits on each side of the window for the slider to go under and then back up.

INSTRUCTIONS
1. Set month over year.
2. Leap years are bold.
3. Ignore 29, 30 and 31 as applicable.

2000	2001	2002	2003	2009	2004	2005
2006	2007	2013	2008	2015	2010	2011
2017	2012	2019	2014	2020	2021	2016
2023	2018	2024	2025	2026	2027	2022
2028	2029	2030	2031	2037	2032	2033
2034	2035	2041	2036	2043	2038	2039
2045	2040	2047	2042	2048	2049	2044
2051	2046	2052	2053	2054	2055	2050

DAYS PER MONTH
JAN 31   JUL 31
FEB 28/29   AUG 31
MAR 31   SEP 30
APR 30   OCT 31
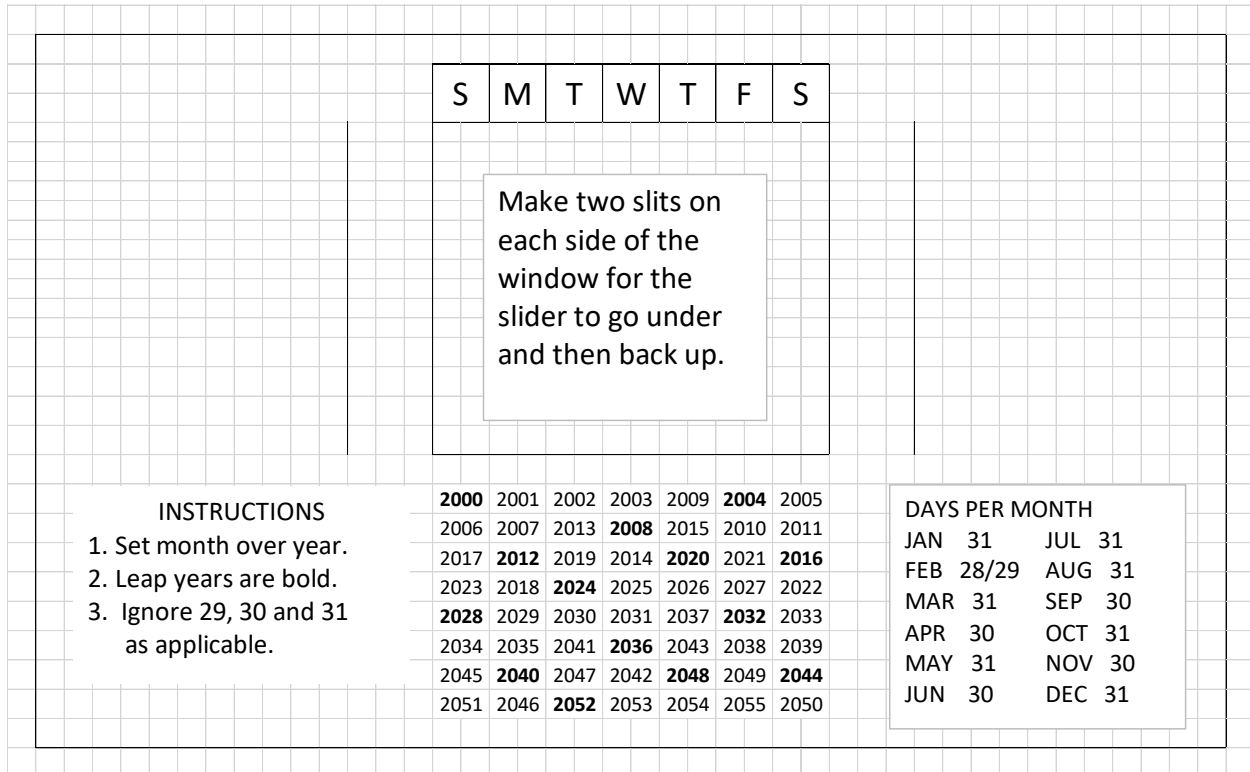MAY 31   NOV 30
JUN 30   DEC 31

Figure 1: Base of moving slider calendar

Figure 2 shows the slider. It has a day-of-month table (numbers 1 to 31) at the top and a month table at the bottom.

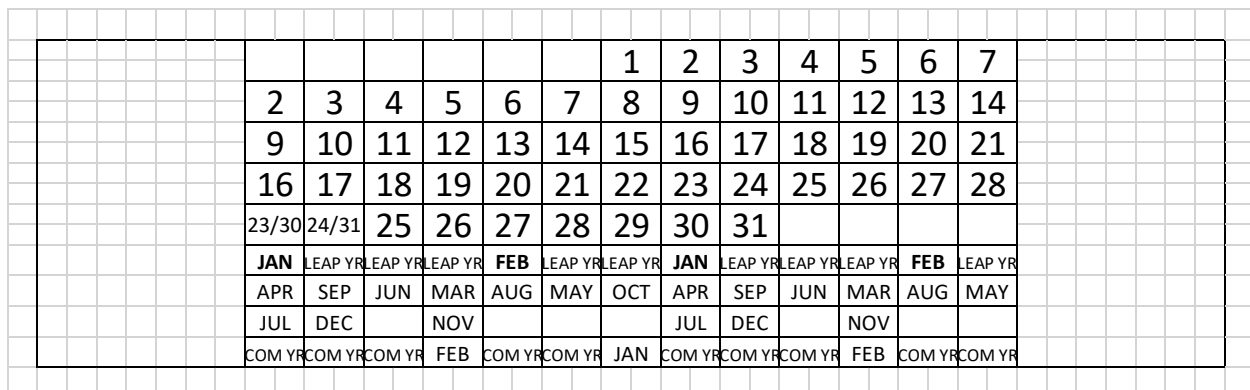|						1	2	3	4	5	6	7
2	3	4	5	6	7	8	9	10	11	12	13	14
9	10	11	12	13	14	15	16	17	18	19	20	21
16	17	18	19	20	21	22	23	24	25	26	27	28
23/30	24/31	25	26	27	28	29	30	31				
JAN	LEAP YR	LEAP YR	LEAP YR	**FEB**	LEAP YR	LEAP YR	**JAN**	LEAP YR	LEAP YR	LEAP YR	**FEB**	LEAP YR
APR	SEP	JUN	MAR	AUG	MAY	OCT	APR	SEP	JUN	MAR	AUG	MAY
JUL	DEC		NOV				JUL	DEC		NOV		
COM YR	COM YR	COM YR	FEB	COM YR	COM YR	JAN	COM YR	COM YR	COM YR	FEB	COM YR	COM YR

Figure 2: Slider of moving slider calendar

If the optional DATE OF EASTER SUNDAY table is in the calendar it is a flap on the top edge of the base that is folded back and glued to the back of the base. Figure 3 shows the table.

DATE OF EASTER SUNDAY

YEAR	DATE	YEAR	DATE	YEAR	DATE	YEAR	DATE
2000	April 23	2014	April 20	2028	April 16	2042	April 6
2001	April 15	2015	April 5	2029	April 1	2043	March 29
2002	March 31	2016	March 27	2030	April 21	2044	April 17
2003	April 20	2017	April 16	2031	April 13	2045	April 9
2004	April 11	2018	April 1	2032	March 28	2046	March 25
2005	March 27	2019	April 21	2033	April 17	2047	April 14
2006	April 16	2020	April 12	2034	April 9	2048	April 5
2007	April 8	2021	April 4	2035	March 25	2049	April 18
2008	March 23	2022	April 17	2036	April 13	2050	April 10
2009	April 12	2023	April 9	2037	April 5		
2010	April 4	2024	March 31	2038	April 25		
2011	April 24	2025	April 20	2039	April 10		
2012	April 8	2026	April 5	2040	April 1		
2013	March 31	2027	March 28	2041	April 21		

Figure 3: DATE OF EASTER SUNDAY table

The moving window calendar is similar to the moving slider calendar. It has three parts, which are the base, the moving window and the track. The base has the text boxes for the INSTRUCTIONS and DAYS PER MONTH, but does not have any calendar tables. The moving window has the same tables as the base in the moving slider calendar. The track has the same tables as the slider in the moving slider calendar. After the track is threaded through the window, each end of it is glued to the base. The moving window slides along the track and displays seven columns of the track.

Using Excel to Make Graphics

I use Excel to make my graphics. It is certainly not a powerful graphics program, but it is widely available and easy to use. Excel features that are useful for making perpetual calendar tables include: a wide range of fonts available, the capability to draw borders around selected cells, the capability to scale the document when printing, the capability to change row heights and column widths, and the capability to merge cells. A disadvantage of Excel is that row heights are usually set as points, where 1 point = 1/72 inches, and column widths are usually set as the number of zero characters ("0") that will fill the cell. The website https://www.officetuto.com/column-width-and-row-height-units-in-excel/ describes a procedure for changing the units to inches or centimeters, but it is complicated. By adjusting cell heights and widths in the usual way and by scaling, I am able to obtain piece sizes close what I would make them if I were able to set exact dimensions.

To start the graphics for either the moving slider or the moving window calendar, set all cells on a spreadsheet to have a width of 2 and a height of 15. Some rows will be changed later to have a

height of 10. The fonts for the various parts for both calendars are below. The sizes of the text boxes are the sizes before scaling when printing.

- Day-of-Week table: Each letter is in a merged cell that is two rows high and two columns wide, which is a total of four cells. The font is Calibri 18.
- Year table: Each year is in a merged cell that is two columns wide, which is a total of two cells. The font is Calibri 11, with bold used for leap years.
- INSTRUCTIONS box: This is text box that is 3.57 cm high by 5.93 cm wide. The text is Calibri 14.
- DAYS PER MONTH box: This is a text box that is 4.41 cm high by 5.22 cm wide. The text is Calibri 11.
- DATE OF EASTER SUNDAY box: This is a text box that is 11.6 cm high by 20.5 cm wide. The text is Calibri 14. The text box is pasted inside a group of cells that have an outside border.
- Day-of-Month table: Each day is in a merged cell that is two rows high by two columns wide, which is a total of four cells. The font is Calibri 18 for most numbers. The font for 23/30 and 24/31 is Calibri 11. The height of the rows in this table is 10, while the height of the other rows in the spread sheet is 15.
- Month table: Each entry is in a merged cell that is two columns wide, which is a total of two cells. The font is Calibri 11 for month names and Calibri 9 for the terms "LEAP YR" and "COM YR". JAN and FEB are bold when they apply to leap years.

The page setup parameters for both calendars are:

- Orientation: Portrait
- Scaling: Adjust to 40% of normal size
- Top & Bottom margins: 1.9
- Left & Right margins: 0.5
- Header & Footer: 0.8
- Gridlines: Not printed

Moving Slider Calendar Parameters

The following row heights need to be changed from 15 to 10:
- 24 to 34 inclusive
- 41 to 51 inclusive
- 67 to 76 inclusive

These are the rows for the day-of-month table. The first group is in the DATE OF EASTER SUNDAY flap, the second group is in the window on the base, and third group is in the day-of-month table. There are 11 rows in each of the first two groups and 10 rows in the third group. Having an extra row in the window makes the window slightly higher than the slider. This ensures that the slits will be wide enough to fit the slider.

The locations of various features are:

Feature	Cell Locations	
	Upper Left	**Lower Right**
DATE OF EASTER SUNDAY flap	R10	BG37
Base	R38	BG65
Day-of-Week table (SMTWTFS)	AF39	AR39
Window	AF41	AS55
Year table	AF57	AR64
Slider overall before left end cut off	G67	BC80
Slider overall after left end cut off	J67	BC80
Slider overall after ends folded back	M67	AZ80
Day-of-Month table	T67	AR75
Month table	T77	AR80

The slit to the left of the window is along the border between columns AB and AC, and runs from the top of row 41 to the bottom of row 55. The slit to the right of the window is along the border between columns AV and AW, and runs from the top of row 41 to the bottom of row 55.

Moving Window Calendar Parameters

The following row heights need to be changed from 15 to 10:
- 21 to 31 inclusive
- 38 to 48 inclusive
- 65 to 74 inclusive

These are the rows for the day-of-month table. The first group is in the DATE OF EASTER SUNDAY flap, the second group is in the window on the base, and third group is in the day-of-month table. There are 11 rows in each of the first two groups and 10 rows in the third group. Having an extra row in the window makes the window slightly higher than the track. This ensures that the slits will be wide enough to fit the track.

The locations of various features are:

Feature	Cell Locations	
	Upper Left	**Lower Right**
DATE OF EASTER SUNDAY flap	AW7	CJ34
Base	AW35	CJ62
Moving window overall	M35	AH62
Day-of-Week table (SMTWTFS)	Q36	AC36
Window	Q38	AD52
Year table	Q54	AC61
Track overall before left end cut off	E65	AU78
Track overall after left end cut off	H65	AU78
Day-of-Month table	O65	AM73
Month table	O75	AM78