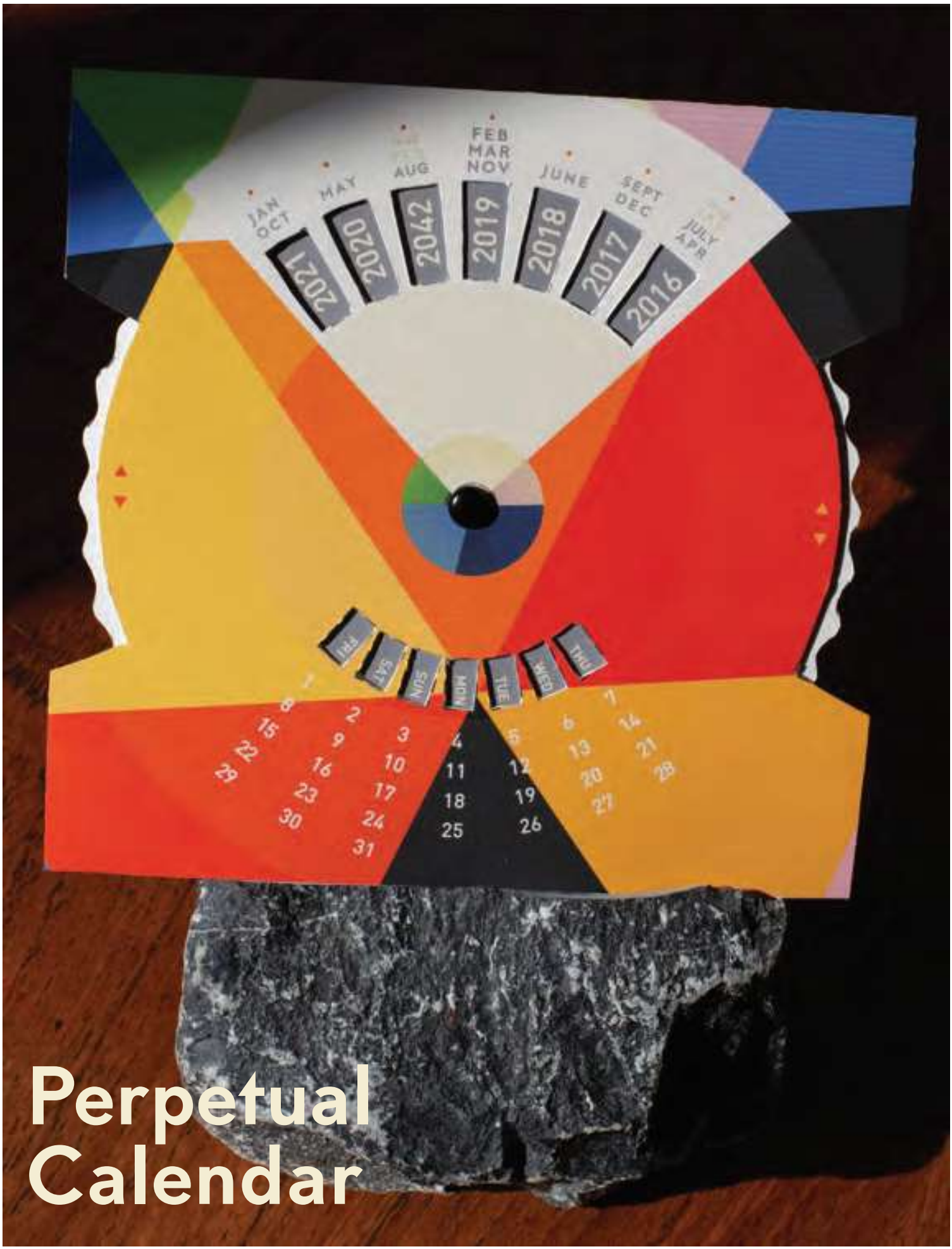
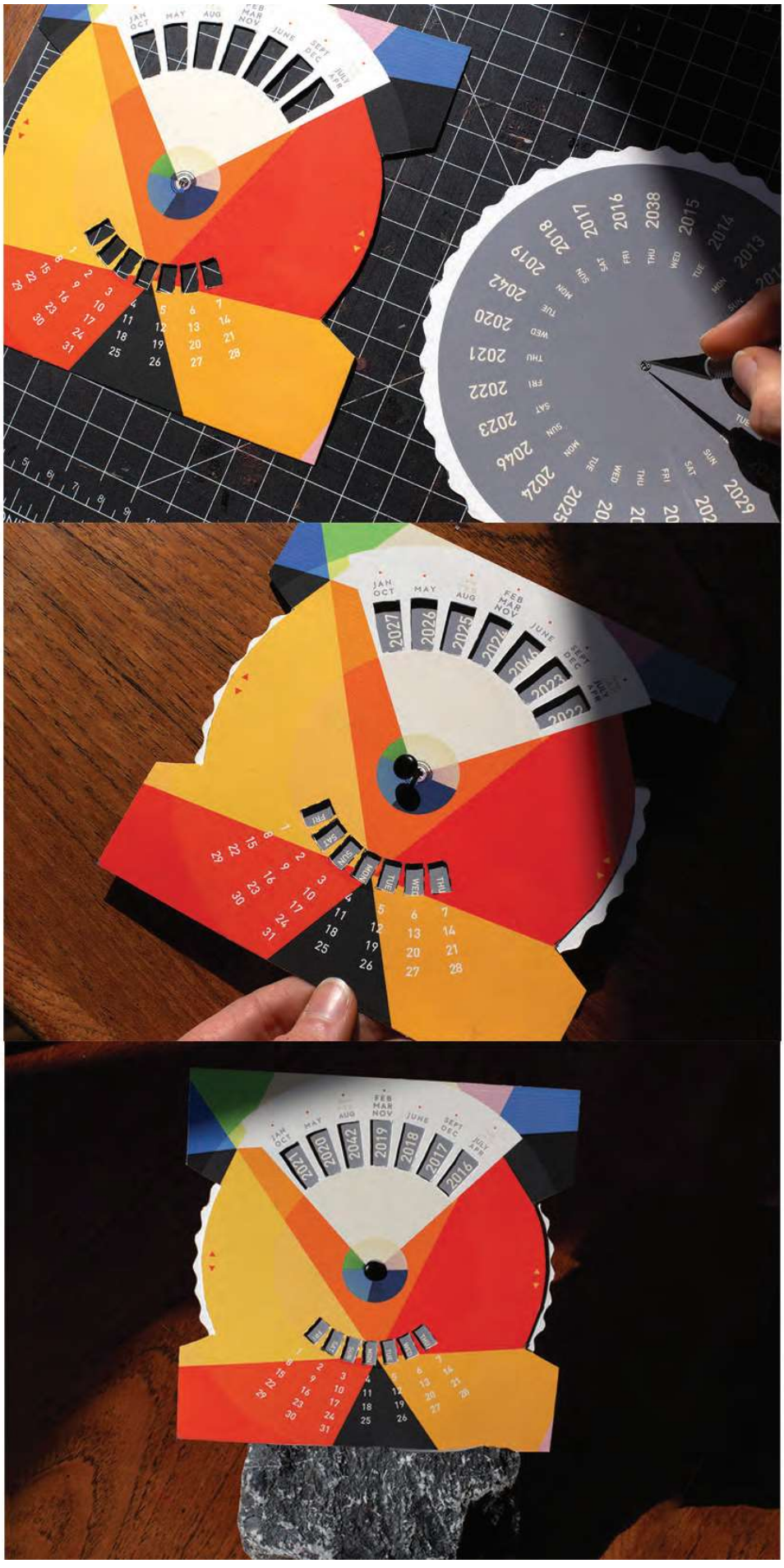


Perpetual Calendar



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Perpetual Calendar

print-at-home
perpetual calendar

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(pop-up adapted from *This Book is a Planetarium*)

1

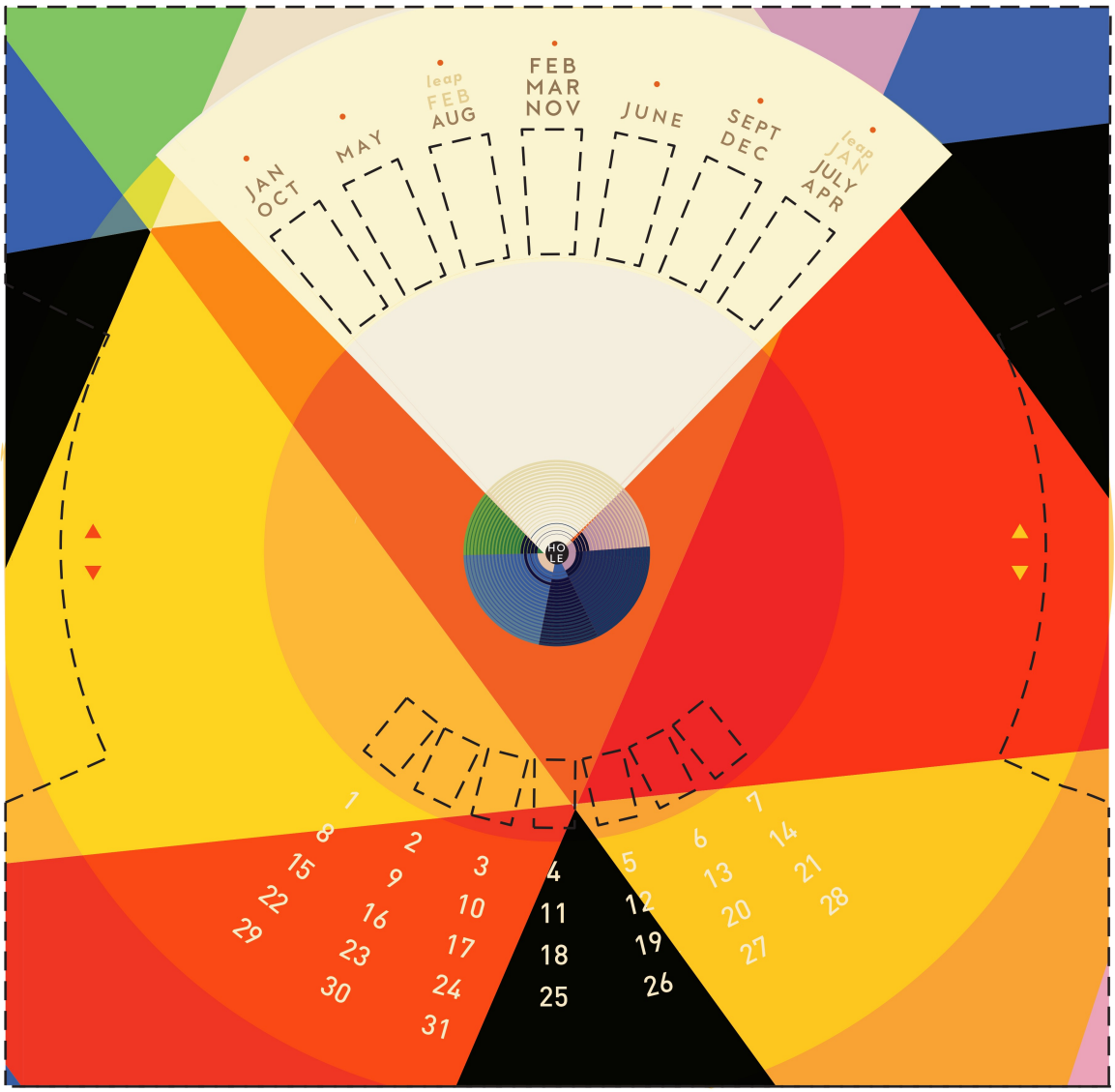
Cut out all of the components along the dotted lines. In the center of each piece, punch a hole where indicated. You can use a hole punch, an x-acto knife (be careful!) or a any sharp, pointy object.

2

Use a brad through the center of both holes to create a spindle. If you don't have a brad, try threading a doubled-up twist-tie through the holes and then bending it into an I=beam shape

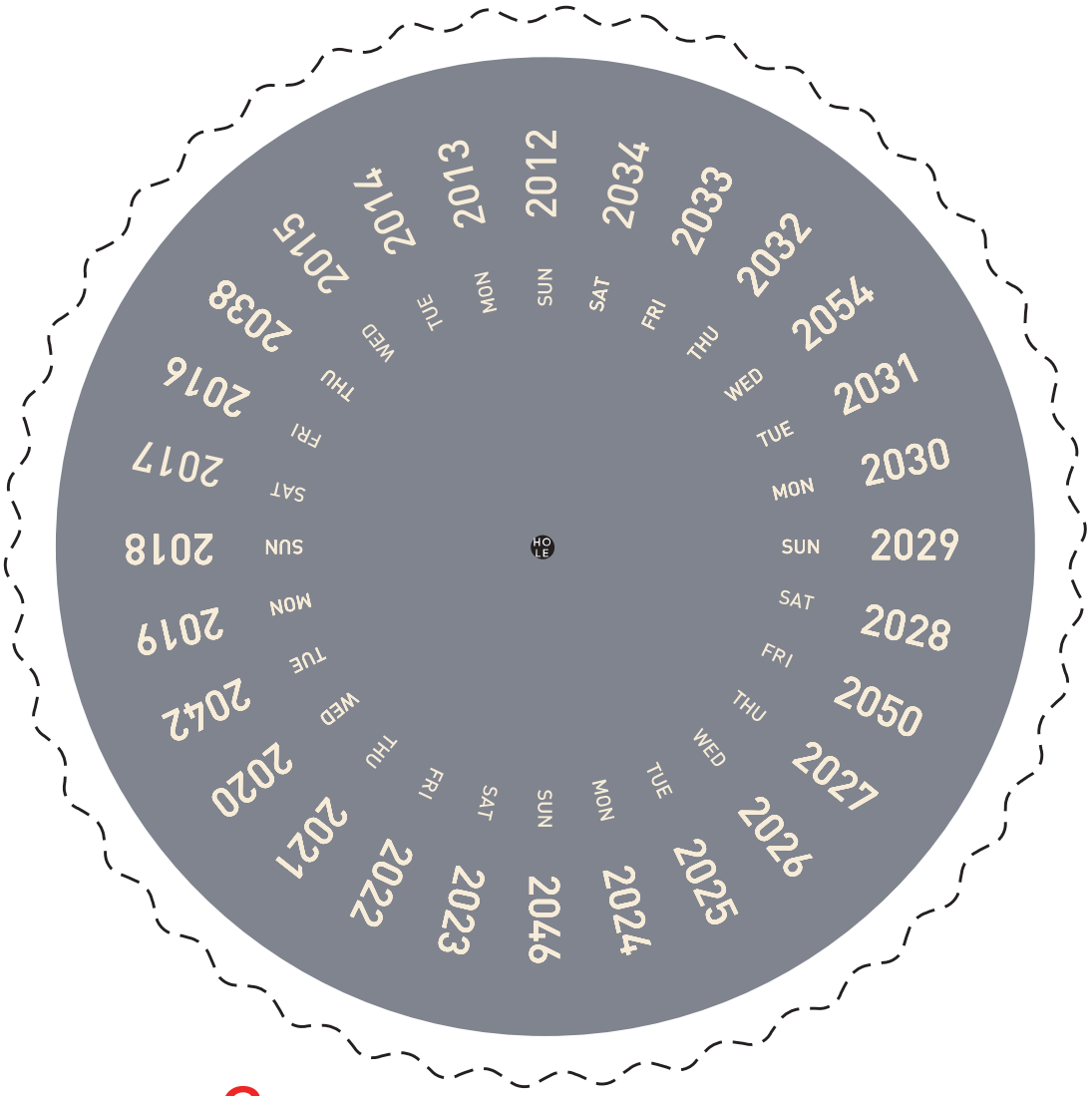
3

Now, the wheel should turn freely underneath the top layer. Ta-da, you just made a paper-engineering mechanism called a volvelle.



CUT LINE

Top Layer



1

To determine the date for any day between now and 2043, turn the wheel to display the year in question within the window for the month in question. The month's numerical dates now each correctly correlate with the days of the week on which they fall.

2

After the year 2043, you can reuse the old years; 2044 maps to 2015 again, 2045 to 2016, and so on.

Wheel Layer

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Why it works

Calendars are humans' attempt to make the observable passage of time (daylight cycles and seasonal cycles) predictable. The unit-based system of days and years assigned to the cycles are specific, yet imprecise. This is because the earth's rotation on its axis is not syncopated with the speed in which the earth orbits the sun. As a result, an Earth year is not actually 365 days long—it is exactly 365.242 days. The Gregorian calendar corrects for this extra fraction of a day by including a 366th day every fourth year, called a leap year, which keeps the calendar months predictably in sync with the seasons. This perpetual calendar works because it is a wheel—which, like a year, is also a cycle divisible into smaller units. It contains all of the dates for 28 years and will accurately provide the date for every year from 2015 to 2043, and then can be extended beyond in perpetuity.

Understanding it even more...

- What day of the week will your 20th birthday fall on?
- What day of the week will you celebrate turning 52? (And what do you think you'll do that day? Want to set up a calendar event now? :))
- When is the next Saturday birthday you'll enjoy?
- Why is your birthday on a different day each year?