DOZENALS

A project promoting base 12 counting and measuring. Ideas and designs by DSA member (#342) and board member, Timothy F. Travis.
I became aware as a teenager of base twelve numbering from a *Popular Science* article. Although I went on to get a degree in math, I was never as taken with mathematically playing with dozens as I was with the everyday applications that base twelve numbering could bring about in weights and measure. Developing my design interests, I worked as a designer and builder of houses and apartments. Although I am a serious promoter of base twelve and the dozenal movement, it is mostly a fun thing. When immersed in these ideas and designs, I am taken back to my childhood when everything was wonderfully new and I could get lost in drawing and possibilities and colors. So, I present to you some of my dozenal creations. I hope your inner child finds fun in them. And, if other young people find such as this interesting, I hope they will take their interests into the future, too.
DOZENALS
A project promoting base 12 counting and measuring.

--The case for base 12 is well presented on the Dozenal Society of America and Dozenal Society of Great Britain websites.

For the two new numbers required for base 12 counting, the RAENBO project uses ṭ and Ṣ.

ṛ is called "dek" and Ṣ is called "brad". ṭ in base 12 is named "doz". The numbers are 1, 2, 3, 4, 5, 6, 7, 8, 9, ṭ, Ṣ, 10 and we count one, two, three, four, five, six, seven, eight, nine, ṭek, Ṣrad, ṭoza.

ṛ is dozy-three, ṭṢ is deka-brad, and Ṣṛ is brada-dek.

The reason most traditional number systems are based on 10 is because we have 10 fingers. By using hand finger pads, we can count in base 12. You can use your thumb to touch each of the 12 pads when counting.

You may view or download the Dozenal Hand by clicking

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You may view or download the RAENBO mandala calendar by clicking

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Uses base 12, dozenal, counting.
I is called dek (and Ⅴ-deka).
II is called brad (and Ⅵ-brada).
III is called doz.

Each month is the same with five, six-day weeks. 30 days in each of the 12 months equals 360 days. The 5 1/4 extra days in a year become solstice and equinox holidays between the 4 seasons.

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Two Winter Solstice Holidays

Spring Equinox Holiday

Summer Solstice Holiday
-Plus Holiday at Leap Year

Autumn Equinox Holiday

You may view or download the RAENBO calendar by clicking...
Once around the DOZENAL CIRCLE or CLOCK is one unit. Once around the clock is a day. Increments are expressed as dozenal "decimals" of the whole. This eliminates the need for units such as hours, minutes, seconds, and degrees. The time on the clock above is expressed as "point five eight one eight o'clock", as shown. We could also say, "point dek eight three five of the circle" or "o'circle".

You may view or download the RAENBO Circle and Clock by clicking View or Download.

Please note: Just as the French metric system of weights and measure is superior to the English system, we have also developed a RAENBO weights and measure system superior to the metric system. For example, note the logic of the RAENBO circle and clock. Note that there is no official metric clock or circle which would be based on 10 or 100. We have developed the RAENBO, more logical and consistent, measurements for weight, length, volume, pressure and so forth.
Some fun things:

Here is an example of a Magic Square using Dozenal numbers. With a magic square all the rows, columns, both diagonals, and the numbers in each quadrant add up to the same number. For this magic square, that sum is 24.

You may view or download this Magic Square by clicking:

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Check out this wonderful you tube video: Magic Square Tutorial

Below the graphic to the left is the Fibonacci number sequence written in Dozenal numbers. The sequence is generated by adding the two previous numbers to get the next.

The graphic shows a Fibonacci spiral (approximating the Golden Spiral) using quarter circle arcs inscribed in squares whose sides are the lengths of the numbers of the Fibonacci sequence.

You may view or download this Fibonacci graphic by clicking:

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There is a not-to-be-missed video on youtube; Doodling in Math: Spirals, Fibonacci, and Being a Plant [1 of 3]
Design for the back of Dozenal playing cards.
-Now we need to have cards made and make up some games. Game ideas anyone?