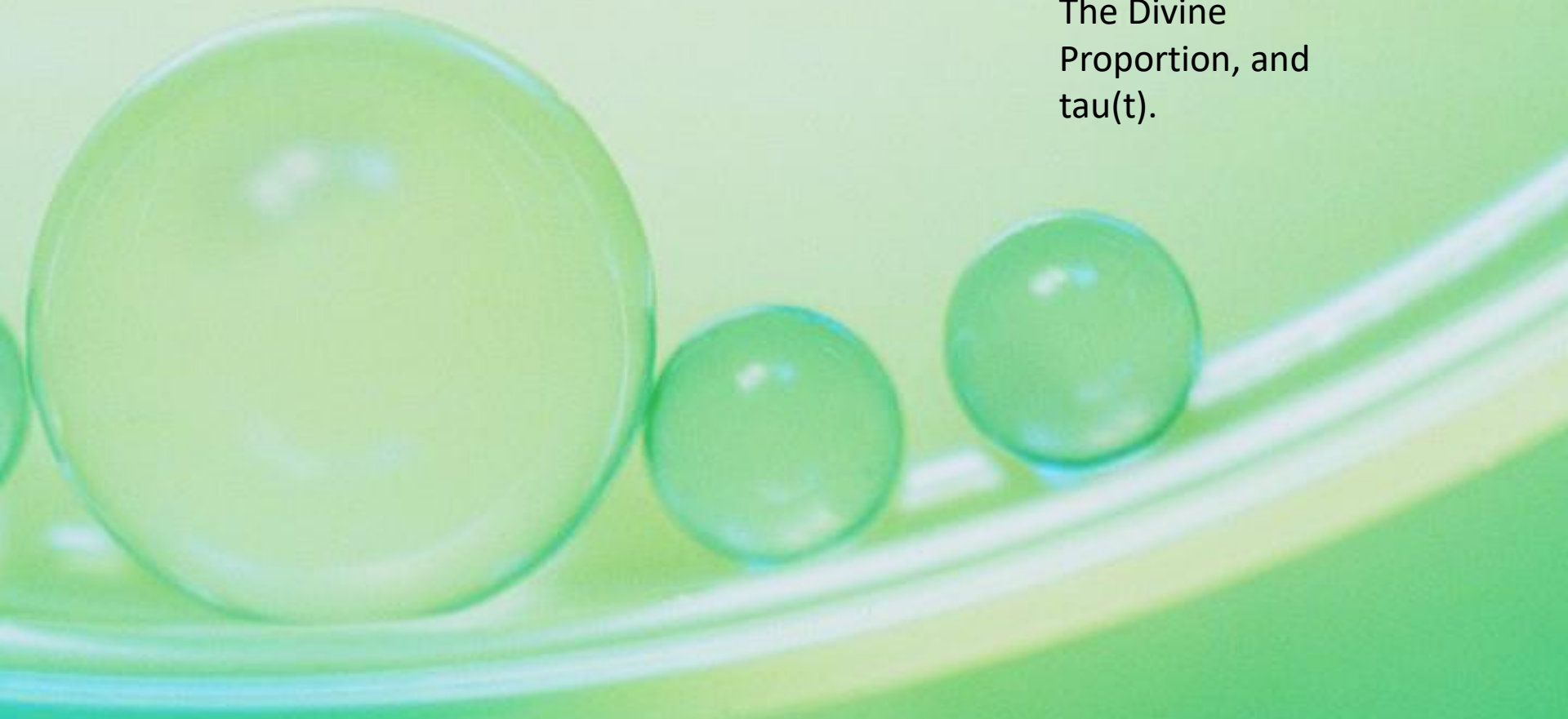
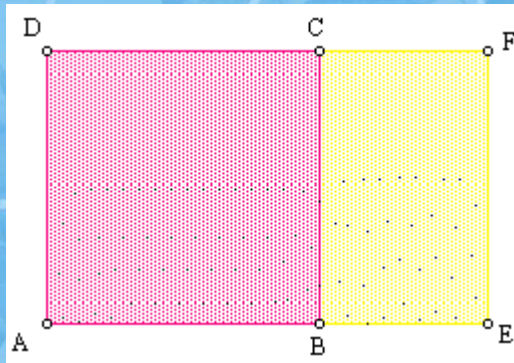


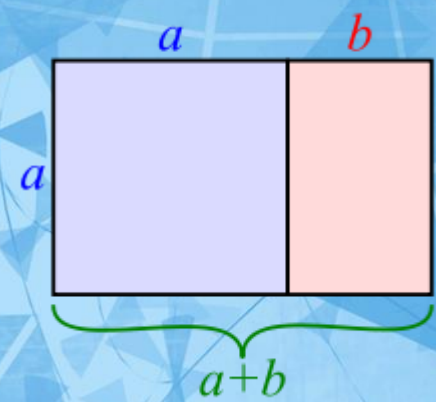
PROPORTION AND HARMONY IN ART

There are many different names for the golden ratio; The Golden Mean, Phi, the Divine Section, The Golden Cut, The Golden Proportion, The Divine Proportion, and tau(t).





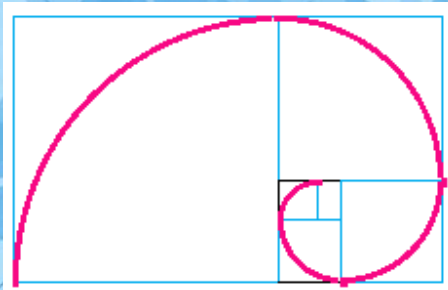
Golden Rectangle is a rectangle with proportions that are two consecutive numbers from the Fibonacci sequence.



A golden rectangle with longer side a and shorter side b , when placed adjacent to a square with sides of length a , will produce a similar golden rectangle with longer side $a + b$ and shorter side a . This illustrates the relationship

In mathematics, the **Fibonacci numbers** are in the following integer sequence: 0, 1, 1, 2, 3, 5, 8, 13, 21, 34, 55, 89, 144, 233, 377, 610, 987, 1597, 2584, 4181, 6765, 10946, 17711, 28657, 46368, 75025, 121393, 196418, 317811, 514229, 832040, 1346269, 2178309, 3524578, 5702887, 9227465, 14930352, 24157817, 39088169

By definition, the first two numbers in the Fibonacci sequence are 0 and 1, and each subsequent number is the sum of the previous two.

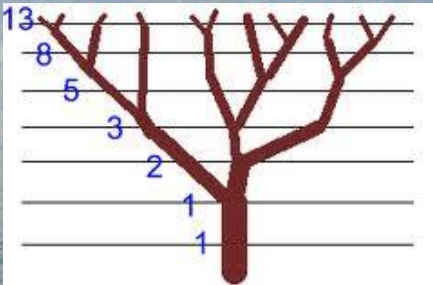


The Golden Spiral above is created by making adjacent squares of Fibonacci dimensions and is based on the pattern of squares that can be constructed with the golden rectangle. If you take one point, and then a second point one-quarter of a turn away from it, the second point is Phi times farther from the center than the first point. The spiral increases by a factor of Phi.



This shape is found in many shells, particularly the nautilus

Flowers and branches: Some plants express the Fibonacci sequence in their **growth points**, the places where tree branches form or split. One trunk grows until it produces a branch, resulting in two growth points. The main trunk then produces another branch, resulting in three growth points. Then the trunk and the first branch produce two more growth points, bringing the total to five. This pattern continues, following the Fibonacci numbers.



The eye-like markings of this moth fall at golden sections of the lines that mark its width and length.

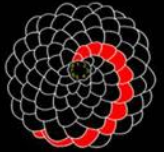


Honeybees construct hexagonal cells to hold their honey

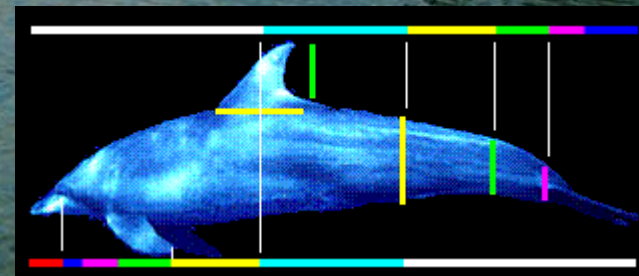
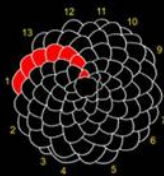
IN THE NATURE

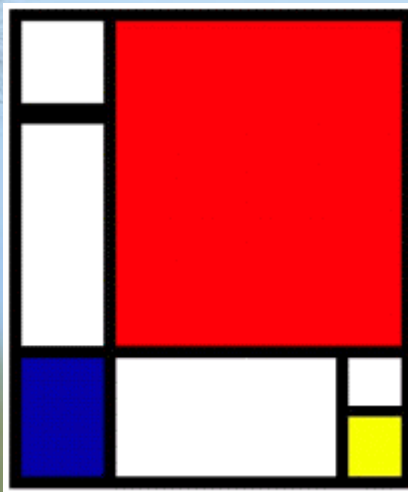
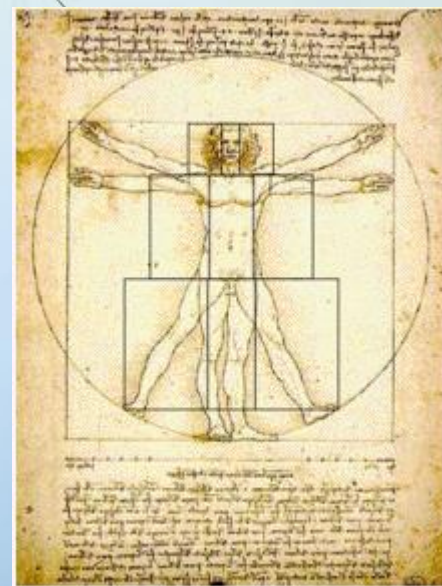
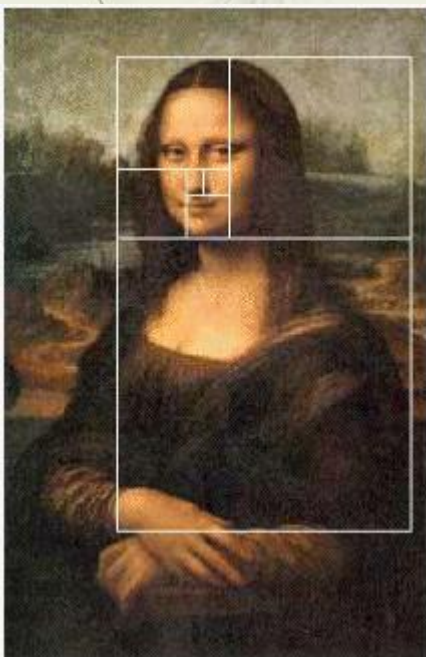
The eye, fins and tail all fall at golden sections of the length of a dolphin's body. The dimensions of the dorsal fin are golden sections (yellow and green). The thickness of the dolphin's tail section corresponds to same golden section of the line from head to tail.

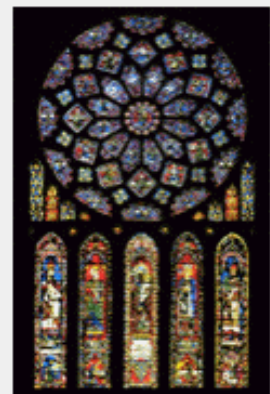
In the pinecone pictured, eight spirals can be seen to be ascending up the cone in a clockwise direction ...



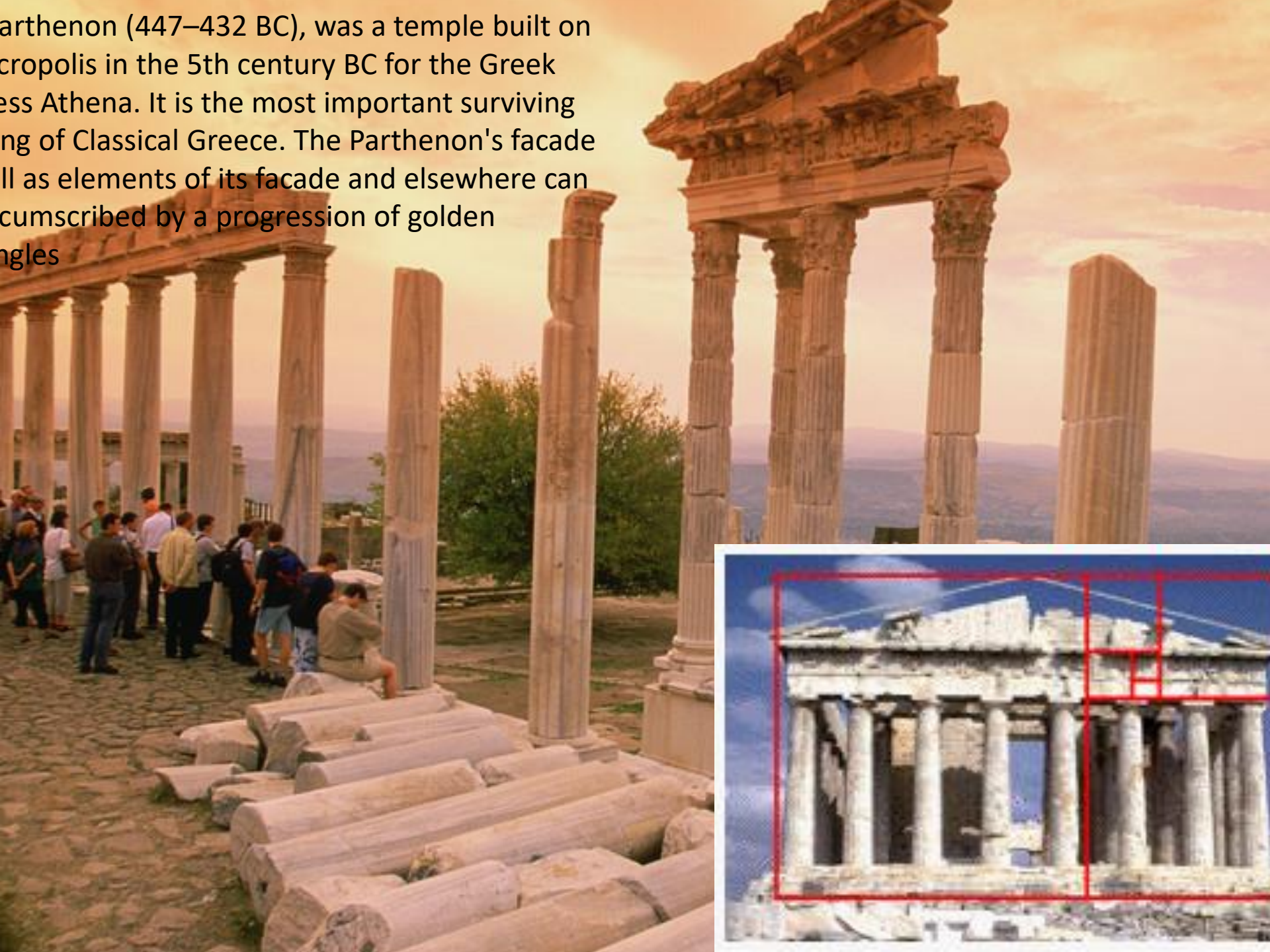
while thirteen spirals ascend more steeply in a counterclockwise direction.

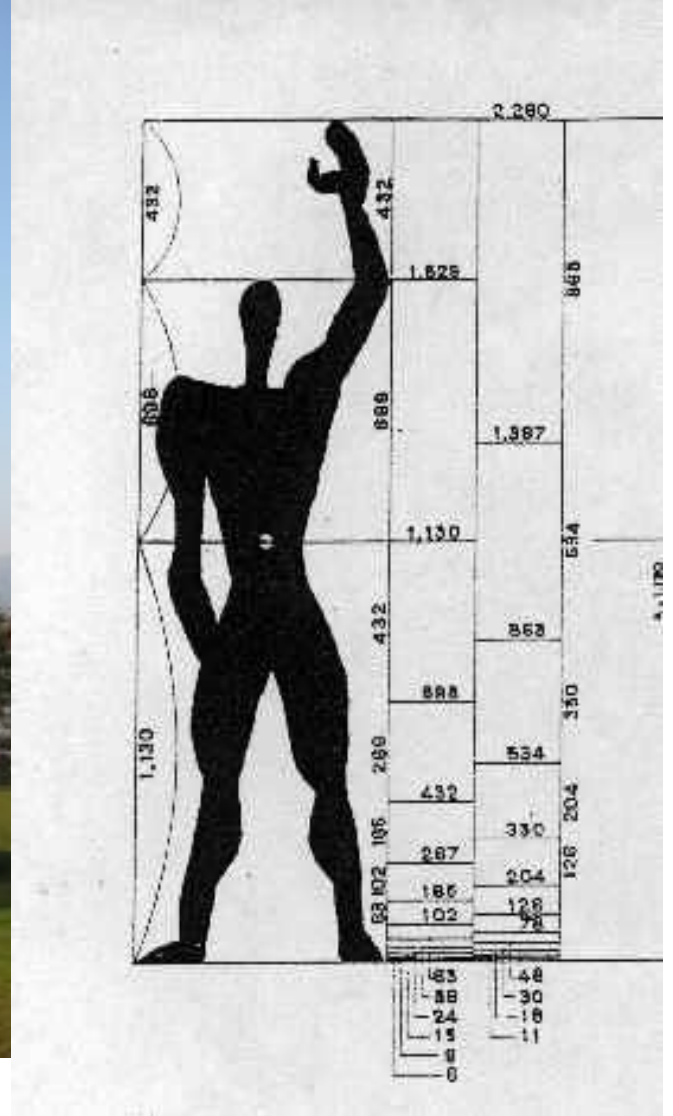






Parthenon (447–432 BC), was a temple built on the Acropolis in the 5th century BC for the Greek goddess Athena. It is the most important surviving monument of Classical Greece. The Parthenon's facade and all its elements of its facade and elsewhere can be circumscribed by a progression of golden angles.





Le Corbusier developed the Modulor in the long tradition of Vitruvius, Leonardo da Vinci's Vitruvian Man, the work of Leone Battista Alberti, and other attempts to discover mathematical proportions in the human body and then to use that knowledge to improve both the appearance and function of architecture. The system is based on human measurements, the double unit, the Fibonacci numbers, and the golden ratio. Le Corbusier described it as a "range of harmonious measurements to suit the human scale, universally applicable to architecture and to mechanical things."

The DNA spiral is a Golden Section

The DNA molecule, the program for all life, is based on the golden section. It measures 34 angstroms long by 21 angstroms wide for each full cycle of its double helix spiral.

