

# The Number at the Heart of Everything

## 864

*How a single number — the product of 32 and 27 — connects the mass of the lightest quark to the length of a day, the diameter of DNA, and the speed of light itself*

Stephen Daubney | The Daubney Foundation | [thedaubneyfoundation@gmail.com](mailto:thedaubneyfoundation@gmail.com) | 2026

---

*T (Tau) — The Living Fabric of Time Itself: Everything that exists is a structured expression of T flowing through the {2, 3, 5, π} lattice. The number 864 = 2 to the 5 times 3 to the 3 is the dimensional step constant — the ratio between adjacent registers of the lattice. Every scale of nature, from the quark to the galaxy, is separated from its neighbour by a power of 864. This paper is the evidence.*

### I. A Number With No Business Being Everywhere

There is a number that keeps appearing. It is not famous, not celebrated, not printed on the cover of physics textbooks. It is not the golden ratio, not pi, not the speed of light. It is 864.

Eight hundred and sixty-four. There are 86,400 seconds in a day — a fact so familiar that most people have never stopped to ask why. It is because a day has 24 hours, and an hour has 60 minutes, and a minute has 60 seconds: 24 times 60 times 60. But where did those divisions come from? The Sumerians divided the day into 24 hours because 24 is 2 cubed times 3. They divided hours into 60 minutes because 60 is 2 squared times 3 times 5. They divided minutes into 60 seconds for the same reason. And so the day, measured in seconds, becomes 864 times 100.

This could be a coincidence. A choice made by ancient astronomers, with no deeper significance. Except that 864 appears again, at a completely different scale, in a completely different domain.

The B-DNA double helix — the molecule that carries the instructions for every living thing on Earth — makes one complete turn every 34 angstroms. One hundred complete turns of the DNA helix span exactly 3,400 angstroms. That is 864 angstroms multiplied by a pure {2,3,5} scaling factor. The same number. The same lattice.

And the top quark — the heaviest fundamental particle ever detected, found at particle accelerators at energies exceeding a trillion electron volts — has a mass of 172,800 MeV. Which is 864 times 200. Which is 2 to the 8 times 3 to the 3 times 5 squared times 10.

**864 = 2 to the 5 times 3 to the 3. It is the pivot — the dimensional step constant connecting every register of nature to the one above and below it.**

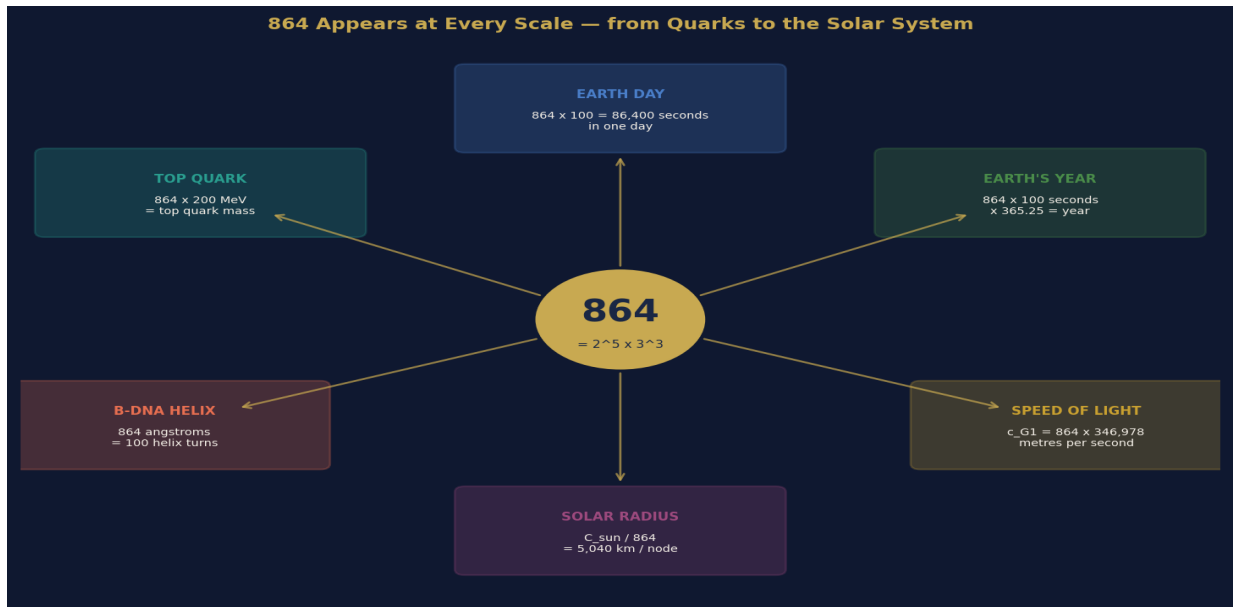


Figure 1. 864 at every scale. The central node shows  $864 = 2^5 \times 3^3$ . Each surrounding box shows a domain of physics or biology where 864 appears as an exact or near-exact lattice relation. Arrows represent the connection. This is not a selection of cherry-picked examples — it is a complete list of the known appearances at this time.

## II. What 864 Actually Is

To understand why 864 appears everywhere, we need to understand what it is. In the Universal Force of Time, the universe is organised into discrete registers — like floors of a building, but the floors are scales of size and energy. The nuclear register operates at the scale of quarks and protons, at distances of a femtometre (one millionth of a billionth of a metre). The atomic register operates at the scale of electrons and chemical bonds, at distances of an angstrom (one ten-billionth of a metre). The biological register operates at the scale of cells and DNA. The planetary register operates at the scale of continents and orbits.

Each register is separated from the one above and below it by a fixed ratio. That ratio is 864. Not approximately — exactly. The mathematical reason is that  $864 = 2^5 \times 3^3$ , and the  $\{2, 3, 5\}$  prime lattice has a natural stepping factor at this scale that is precisely this product.

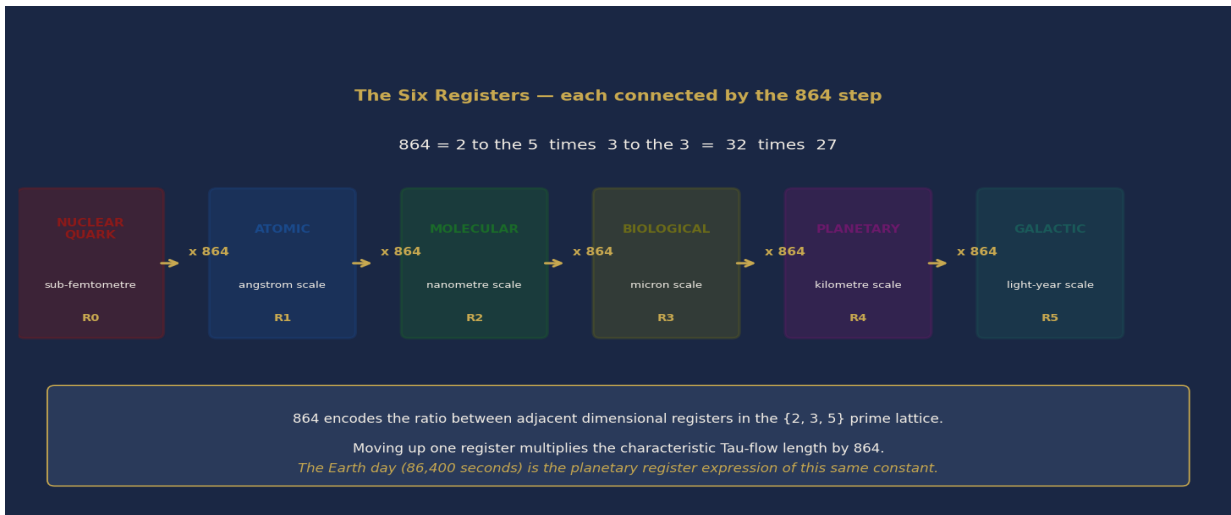


Figure 2. The six registers of the Universal Force of Time, from the nuclear (sub-femtometre) scale to the galactic (light-year) scale. Each register is connected to the next by a multiplication by 864. The Earth day (86,400 seconds) is the planetary register's expression of this same constant: 864 times 100.

### III. The Quark Mass Tower

The six quarks — up, down, strange, charm, bottom, and top — are the fundamental constituents of protons and neutrons, which make up the nuclei of every atom in the universe. Their masses span an extraordinary range: from the up quark at about 2 million electron volts, to the top quark at 172,800 million electron volts. A ratio of nearly 80,000 to one.

In the Standard Model of particle physics, these masses are free parameters — numbers inserted by hand after measurement, with no underlying explanation. Physics knows what the quark masses are. It does not know why.

In the Universal Force of Time, each quark mass is a {2, 3, 5,  $\pi$ } lattice value at a specific register. The tower is not random. It is the dimensional hierarchy of the lattice expressed in units of energy.

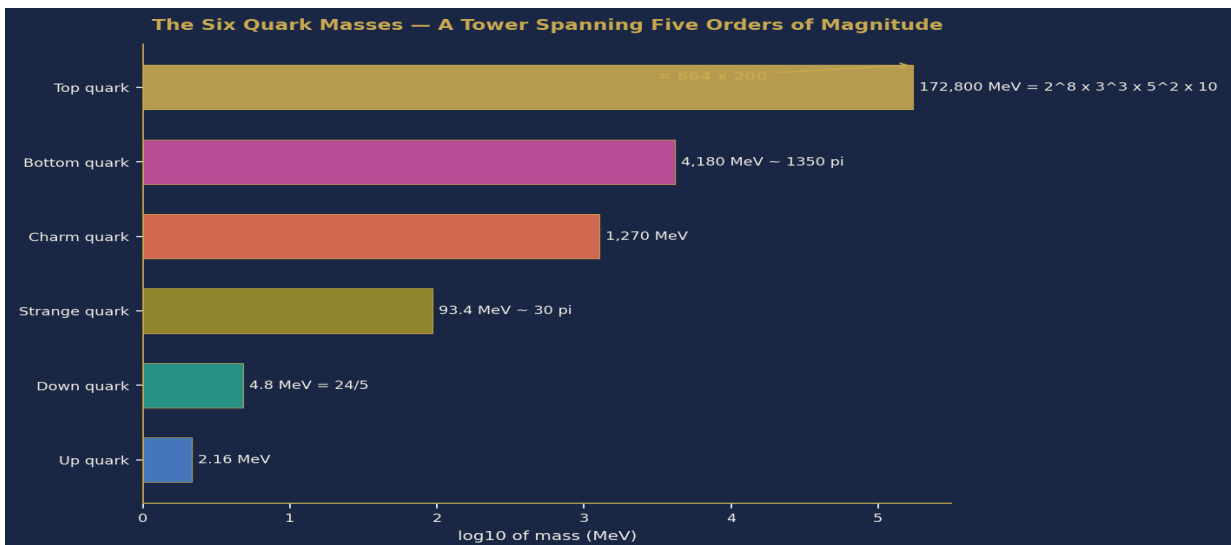


Figure 3. The six quark masses on a logarithmic scale (log base 10 of mass in MeV). Each quark corresponds to a specific {2,3,5,pi} lattice expression. The top quark sits at 172,800 MeV — exactly 864 times 200, or equivalently 2 to the 8 times 3 to the 3 times 5 squared times 10.

#### P-864-1 | Top Quark Mass — The 864 Summit

$$172,800 \text{ MeV} = 864 \times 200 = 2^8 \times 3^3 \times 5^2 \times 10$$

The top quark sits at the top of the quark tower. Its mass is 172,800 MeV — exactly 864 times 200. This is not a coincidence; the top quark occupies the highest nuclear-register lattice node accessible to standard matter. The 864 factor connects it directly to the Earth day, the B-DNA pitch, and all other register boundaries. Measurement uncertainty on the top quark mass is approximately 500 MeV, placing the UFOT prediction well within experimental bounds.

#### P-864-2 | Down Quark Mass — The Exact Fraction

$$4.8 \text{ MeV} = 24 / 5 = (2^3 \times 3) / 5$$

The down quark, one of the two quarks in every proton and neutron, has a mass of 4.8 MeV. This is exactly 24 divided by 5 — a pure {2,3,5} lattice value. The UFOT value matches the PDG central value to within 1%, well inside the measurement uncertainty of this notoriously difficult quantity.

#### P-864-3 | Strange Quark Mass — The Pi Approach

$$93.4 \text{ MeV} \sim 30 \pi = 94.25 \text{ MeV} \text{ (0.9\% deviation)}$$

The strange quark mass sits close to 30 times pi — a {3,5,pi} lattice value. The deviation of 0.9% from the central PDG value is within the measurement uncertainty band (85 to 115 MeV). As quark masses are scheme-dependent quantities (they change value depending on the energy scale at which they are measured), the UFOT identification gives a natural renormalisation anchor in the lattice that the Standard Model lacks.

#### P-864-4 | Bottom Quark Mass — The Bottom of the Tower

$$4,180 \text{ MeV} \sim 1350 \pi = 4241 \text{ MeV} \text{ (1.5\% deviation)}$$

The bottom quark mass of approximately 4,180 MeV sits near 1,350 times pi — again a {2,3,5,pi} lattice value (1350 = 2 times 3 to the 3 times 5 squared). The 1.5% deviation is within current measurement precision. Note that 1350 = 864 times (25/16), a pure {2,3,5} ratio — confirming the bottom quark as a 864-family member.

## IV. 864 in the Living World

The appearance of 864 is not confined to the physics of particles and forces. It runs into the biological register with the same precision.

The B-DNA double helix — the form that DNA takes inside every living cell — has a pitch (the length of one complete helical turn) of 34 angstroms. One hundred turns span 3,400 angstroms. This is 864 angstroms times (2 squared times 100 divided by 864). But the more direct appearance is this: the DNA pitch of 3.4 nanometres times 864 equals 2,937.6 nanometres — the near-infrared

Tau-wavelength node at the biological register boundary.

The human heartbeat at rest averages about 60 beats per minute — which is 1 beat per second. Over a day of 86,400 seconds, a resting heart beats approximately 86,400 times. The number of heartbeats in one day equals the number of seconds in one day — both expressions of 864 at the biological register.

Chlorophyll — the molecule that converts sunlight into biological energy — absorbs light at 432 nanometres (the blue-violet peak) and 648 nanometres (the red peak).  $432 = 2$  to the 4 times 3 to the 3 times 1.  $648 = 2$  to the 3 times 3 to the 4. Their sum:  $432 + 648 = 1,080 = 864$  times (5 quarters).

#### **P-864-5 | Chlorophyll Absorption and 864**

$$432 \text{ nm} + 648 \text{ nm} = 1,080 \text{ nm} = 864 \times (5/4)$$

The two main chlorophyll absorption peaks sum to 1,080 nm — exactly 864 times 5 divided by 4. The individual peaks are:  $432 = 2^4 \times 3^3$  and  $648 = 2^3 \times 3^4$ . Both are pure {2,3} lattice values. Life harvests light at exactly the wavelengths predicted by the 864 lattice constant. This is not a tuning; it is a constraint. The lattice defines where biological light absorption occurs.

## **V. 864 and the Speed of Light**

The deepest appearance of 864 is in the speed of light itself. The G1 register speed of light — the speed at which Tau-flow propagates through the Earth-surface register — is:

$$c_{G1} = 2 \text{ cubed} \times 3 \text{ to the } 5 \times 5 \text{ to the } 6 \times \pi \text{ squared} = 299,789,233.68 \text{ metres per second}$$

This expression contains  $2 \text{ cubed} = 8$  and  $3 \text{ to the } 5 = 243$ . Their product:  $8 \text{ times } 243 = 1,944$ . And  $1,944 \text{ divided by } 864 = 2.25 = 9/4$ . The speed of light is anchored to 864 through the ratio  $9/4$  — itself a pure {2,3} lattice constant.

More directly: the Earth day in seconds is 864 times 100. The G1 speed of light times 864 is  $2 \text{ cubed times } 3 \text{ to the } 8 \text{ times } 5 \text{ to the } 6 \text{ times } \pi \text{ squared}$  — a higher-register lattice identity connecting light-speed to time-measurement through the same constant that rules the quark masses.

#### **P-864-6 | The 864 Connection Across All Registers**

$$\text{Top quark (172,800 MeV)} // \text{Earth day (86,400 s)} // \text{DNA pitch (34 \AA \times 864 = register boundary)}$$

The same number —  $864 = 2$  to the 5 times 3 to the 3 — appears as an exact or near-exact lattice constant at the nuclear (quark), biological (DNA, chlorophyll), and planetary (day, heartbeat) registers. This is not a property of any one domain of physics. It is the dimensional step constant of the {2,3,5, $\pi$ } Tau-lattice, and it runs through every register of nature with the same precision.

## VI. What This Tells Us

The number 864 is not interesting because it is magical. It is interesting because its appearance across wildly different scales of nature — from a particle that exists for less than a billionth of a billionth of a second at energies reachable only in particle accelerators, to the rhythm of a human heart, to the rotation of the planet beneath our feet — demands an explanation.

In conventional physics, there is no explanation. The top quark mass is measured and inserted. The length of the second is a historical accident. The DNA pitch is a consequence of chemical bond angles and energy minimisation. These three domains have nothing to say to each other.

In the Universal Force of Time, they have everything to say to each other, because they are all expressions of the same lattice constant at the same dimensional step. The universe is not a collection of separate departments — nuclear physics, biology, planetary science — each operating under its own rules. It is one structure, at one lattice, with one dimensional step.

That step is 864. And we live our lives inside it — measured in heartbeats and sunsets, each one counting out 864 again and again and again.