Greetings from Science of Mind!

Dave The Gravity Wave Science Guy

https://www.youtube.com/channel/UCiOuK4_zUvJ8P21GUymUf8w

… In the Beginning, t[0] … the Universe began …

> And there was Plank's Constant, t(10^-43) seconds.

> Temperature = 10^32x. Density – downright indescribable.

> There was one force, one type elementary particle.

> Early on Gravity separates itself from the union.

> At t(10^-35) seconds, Strong Nuclear Force exits the union.

> This triggers inflation – Universe instantaneously grows to size.

> From tinier than an atom, to an unknown large size.

> t(10^-35s), Temp(10^27x): expansion/cooling → 6 types of quarks.

… “A Few Moments Later” …

> At t(10^-12s), and T(10^15x), EM and Weak Nuclear Force separate.

> So we have The Four famous Forces: SNF, WNF, EM, G.

> All 6 types Leptons have formed(particles not influenced by SNF).

> Includes electron, neutrino, muon, etc; but we will focus on quarks.

> At t(10^-6s) … Down/Up quarks have formed to make Neutron, Proton.

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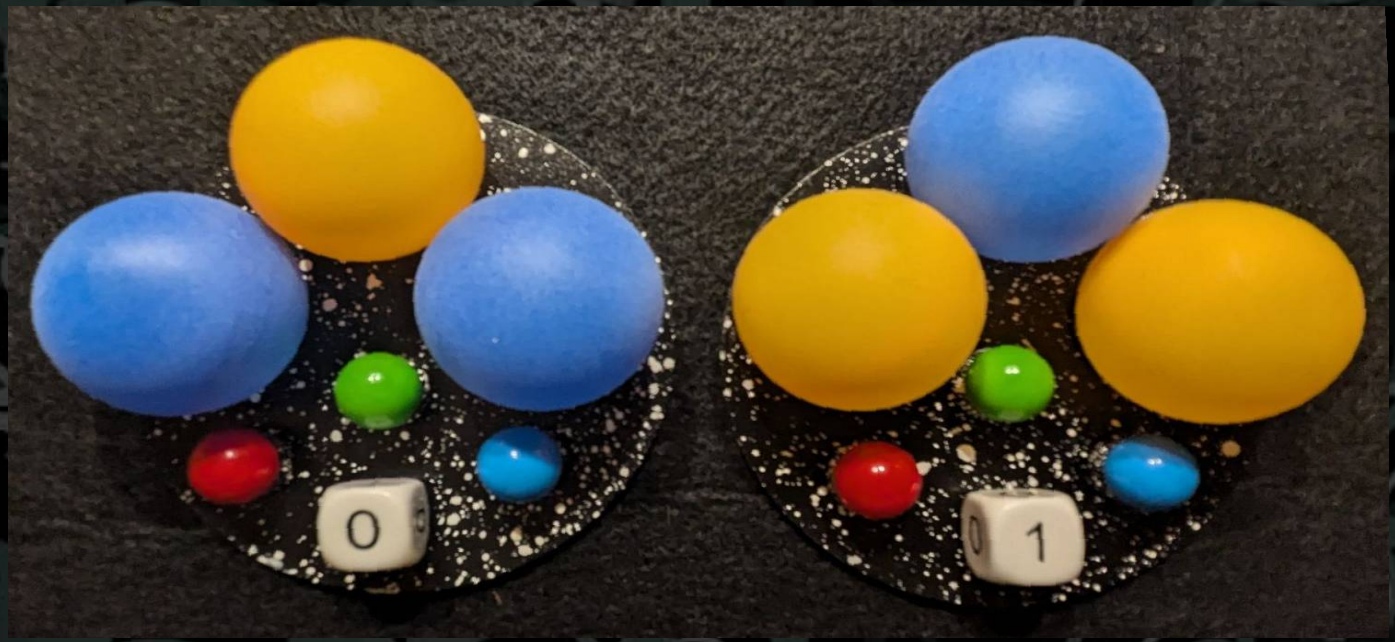

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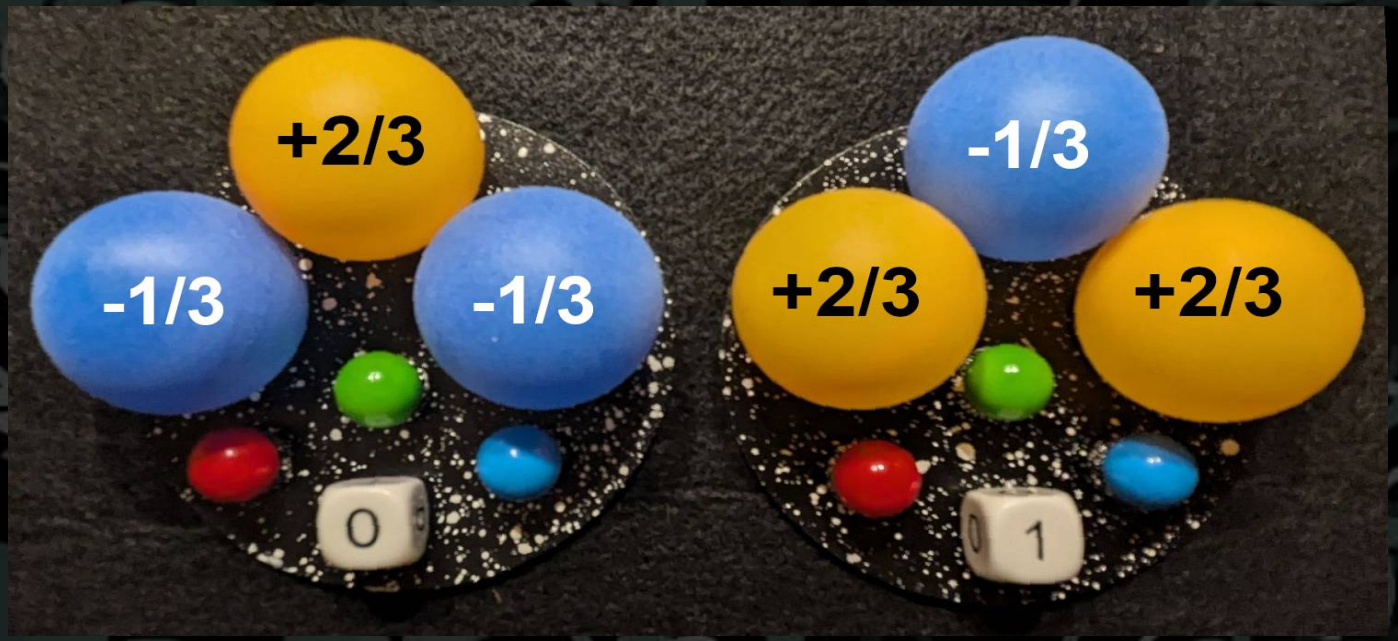


What is a Neutron and Proton?

> [1] Hadrons are particles made of Quarks and interact using the Strong Magnetic Force.

> [2] Baryons are a type of [1] Hadron made of 3 Quarks.

> Neutrons are a Baryon with 2 Down quarks and 1 Up quark.

> Protons are a Baryon with 2 Up quarks and 1 Down quark.

> Down quarks have a charge of -1/3e; Up quarks are +2/3e.

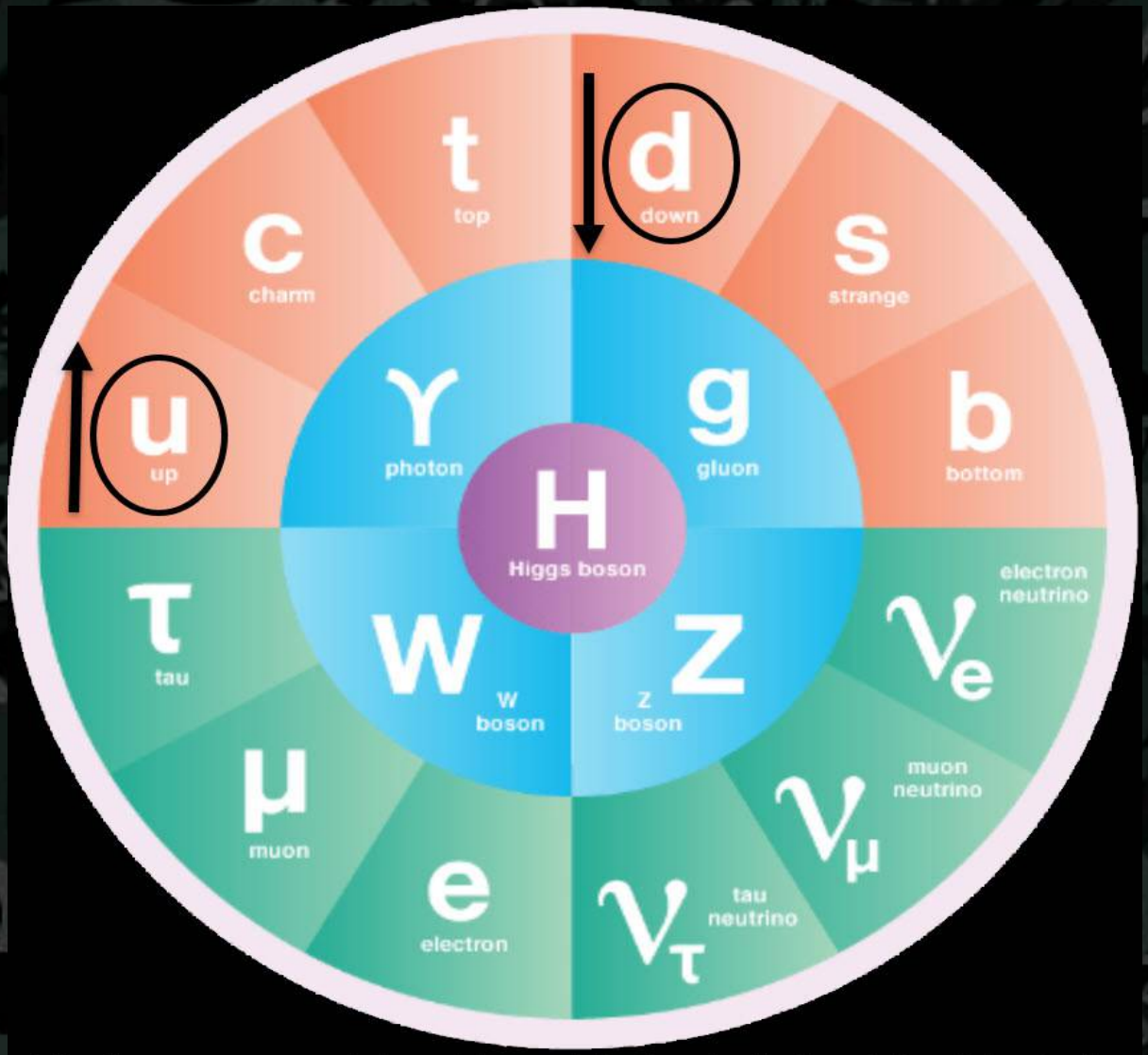
> see first 17” of - Cassiopeia Project Quantum Electrodynamics

Role of Quarks and Gluons

- Baryons are subatomic particles composed of three quarks, with the most well-known examples being protons and neutrons.
- Quarks combine together within the diameter of each Baryon (N or P).
- Gluons are responsible for carrying force charge.
- The following descriptive equations in the Standard Model are ultraspecific to the gluon, the boson that carries the strong force. Gluons come in eight types, interact among themselves, and have what is called a color charge which combine to form the color white.

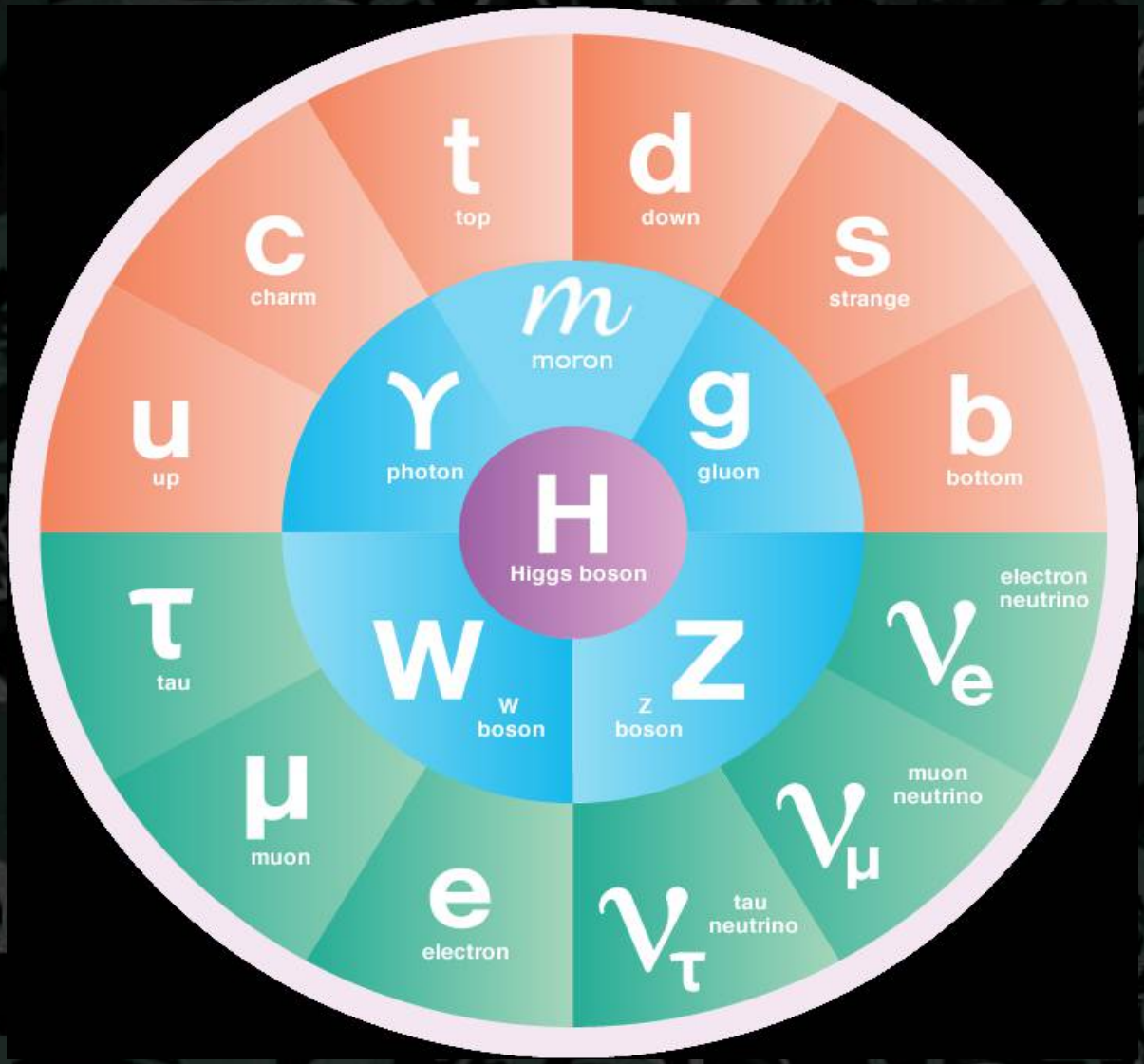
$$-\tfrac{1}{2}\partial_\nu g^a_\mu \partial_\nu g^a_\mu - g_s f^{abc}\partial_\mu g^a_\nu g^b_\mu g^c_\nu - \tfrac{1}{4}g_s^2 f^{abc} f^{ade} g^b_\mu g^c_\nu g^d_\mu g^e_\nu +$$
$$\tfrac{1}{2}ig_s^2(\bar{q}^\sigma_i \gamma^\mu q^\sigma_j) g^a_\mu + \bar{G}^a \partial^2 G^a + g_s f^{abc}\partial_\mu \bar{G}^a G^b g^c_\mu - \partial_\nu W^+_\mu \partial_\nu W^-_\mu -$$
$$M^2 W^+_\mu W^-_\mu - \tfrac{1}{2}\partial_\nu Z^0_\mu \partial_\nu Z^0_\mu - \tfrac{1}{2c^2_w} M^2 Z^0_\mu Z^0_\mu - \tfrac{1}{2}\partial_\mu A_\nu \partial_\mu A_\nu - \tfrac{1}{2}\partial_\mu H \partial_\mu H -$$

Standard Model



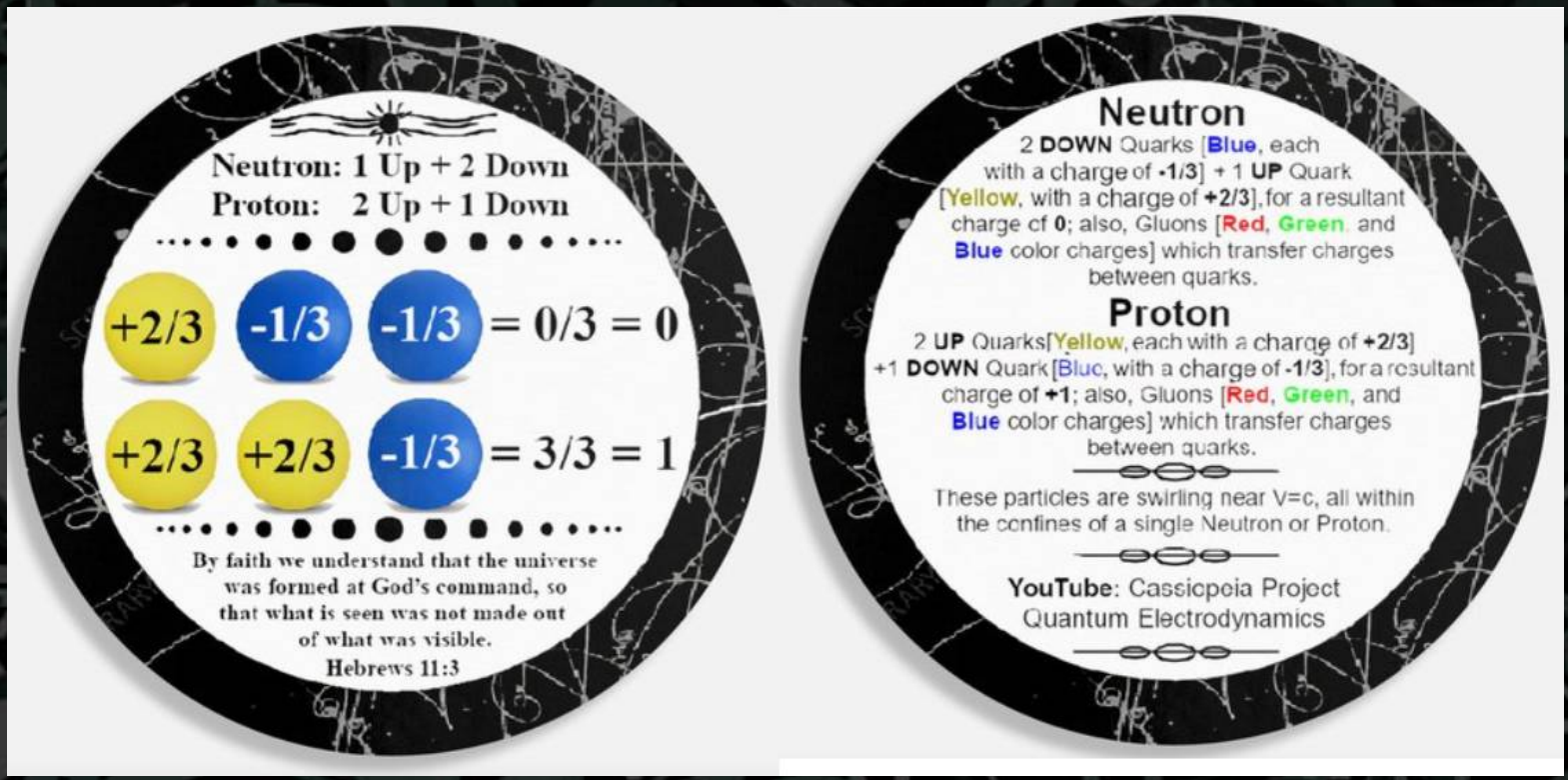
https://www.energy.gov/science/doe-explainsthe-standard-model-particle-physics

The Universe is made of Neutrons, Protons, Electrons, and Morons



Legends accompanying each model:

- Neutrons and Protons are made up of 2 types of Quarks.
- Down quarks have charge of -1/3; Up quarks are +2/3.



Cassiopeia Project Quantum Electrodynamics

- Quarks are assigned a color charge by Gluon interactions, but for simplicity we color Down quarks as Blue, Up quarks as Yellow.
- Below are 2 isotopes as defined by number of Protons in the nucleus:

Lithium-6 Lithium-7

What is a Neutron and Proton?

Presentation by: Science of Mind

Summary: the irreducible complexity of the Neutron and Proton is believed to consist of 2 types of Quarks, the Down and Up quark. Gluons facilitate the Strong Nuclear Force keeping quarks together and the Gluons are represented by *white light; and therefore broken down into R, G, B components. Quarks and Gluons are swirling around near the speed of light within the diameter of each Baryon. In this presentation, Down quarks have been depicted as Blue, Up quarks depicted as Yellow.

Quarks change their “color” (ie, swapping respective charges) as they emit and absorb gluons. The exchange of gluons maintains the proper Quark color/charge distribution.

*Gluons represent white because they are a combination of a color and an anticolor, which can change the colors of the quarks and antiquarks that emit or absorb them.

THANK YOU!
AND REMEMBER ...