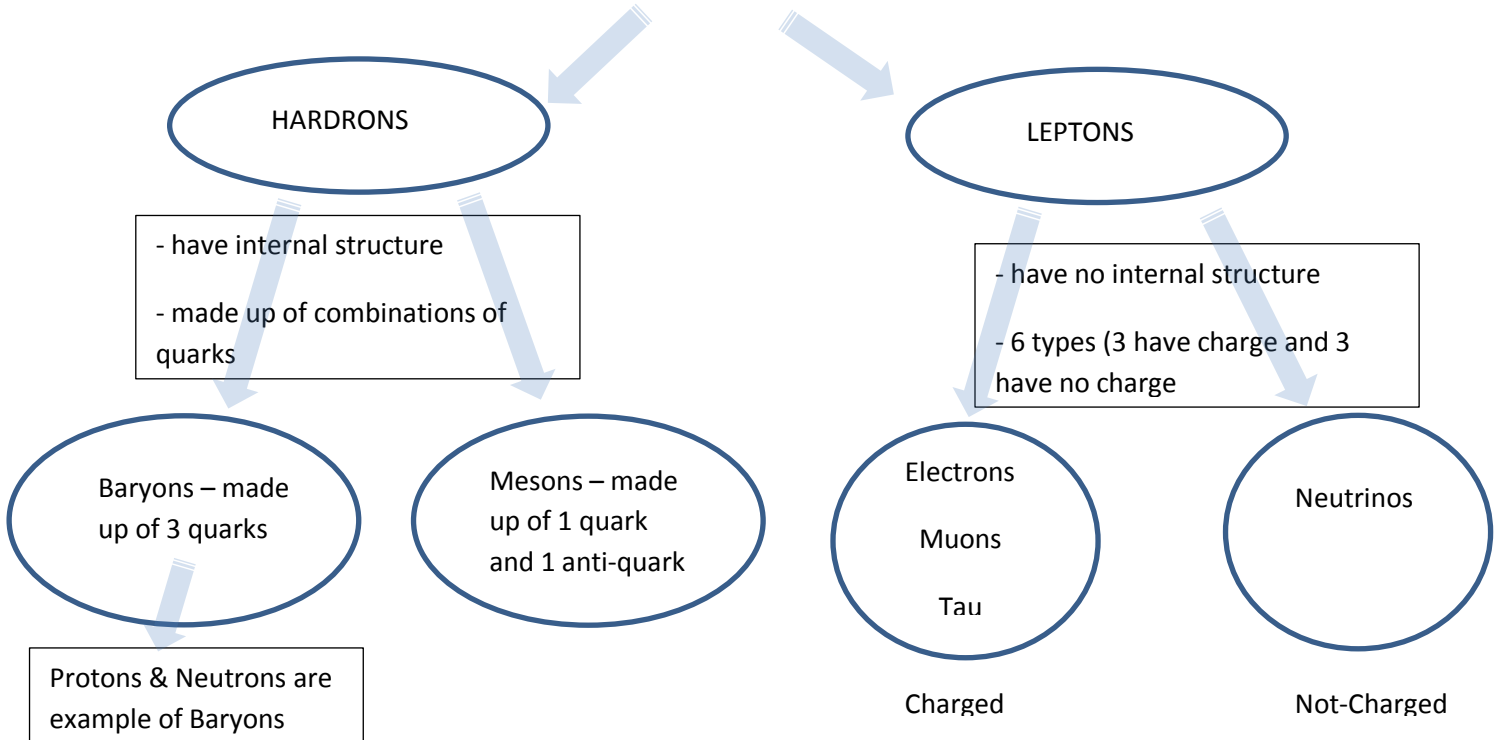


“Elementary Particle Physics”

Matter comes in two basic kinds:



Protons & Neutrons are example of Baryons

Quarks come in 6 different flavors (types) {names were simply chosen at random}

Leptons come in 6 different types:

Up	Charm	Top
+2/3 Charge	+2/3 Charge	+2/3 Charge
1/3 m _p	1.7 m _p	186 m _p
Down	Strange	Bottom
-1/3 Charge	-1/3 Charge	-1/3 Charge
1/3 m _p	1/2 m _p	4.9 m _p

Electron (e)	Muon (μ)	Tau (τ)
-1 Charge	-1 Charge	-1 Charge
0.0005 m _p	0.1 m _p	1.9 m _p
Electron neutrino (ν _e)	Muon neutrino (ν _μ)	Tau neutrino (ν _τ)
0 Charge	0 Charge	0 Charge
Mass negligible	Mass negligible	Mass negligible

Note: m_p = mass of proton = 938 MeV/c² = 1.67 x 10⁻²⁷ kg

All matter is made from either combinations of quarks or leptons!

- Quarks also carry another type of charge called “colour”
- Quarks are never found by themselves ... always in groups

All of these particles have anti-matter equivalents