Standard Model of Elementary Particles

three generations of matter (fermions)

interactions / force carriers (bosons)

	I	II	III		
mass	≃2.2 MeV/c²	≃1.28 GeV/c²	≃172.76 GeV/c²	0	≃124.97 GeV/c²
charge	⅔	⅔	⅔	0	0
spin	½	½	½	1	0
QUARKS	u **up**	c **charm**	t **top**	g **gluon**	H **higgs**
QUARKS	≃4.7 MeV/c² −⅓ ½ d **down**	≃96 MeV/c² −⅓ ½ s **strange**	≃4.18 GeV/c² −⅓ ½ b **bottom**	0 0 1 γ **photon**	
LEPTONS	<1.0 eV/c² 0 ½ ν_e **electron neutrino**	<0.17 MeV/c² 0 ½ ν_μ **muon neutrino**	<18.2 MeV/c² 0 ½ ν_τ **tau neutrino**	≃91.19 GeV/c² 0 1 Z **Z boson**	GAUGE BOSONS VECTOR BOSONS
LEPTONS	≃0.511 MeV/c² −1 ½ e **electron**	≃105.66 MeV/c² −1 ½ μ **muon**	≃1.7768 GeV/c² −1 ½ τ **tau**	≃80.39 GeV/c² ±1 1 W **W boson**	

SCALAR BOSONS