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	≃173.1 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
	≃4.7 MeV/c²	≃96 MeV/c²	≃4.18 GeV/c²	0	
	−⅓	−⅓	−⅓	0	
	½	½	½	1	
	d down	s strange	b bottom	γ photon	
LEPTONS	≃0.511 MeV/c²	≃105.66 MeV/c²	≃1.7768 GeV/c²	≃91.19 GeV/c²	
	−1	−1	−1	0	
	½	½	½	1	
	e electron	μ muon	τ tau	Z Z boson	
	<1.0 eV/c²	<0.17 MeV/c²	<18.2 MeV/c²	≃80.433 GeV/c²	
	0	0	0	±1	
	½	½	½	1	
	ν_e electron neutrino	ν_μ muon neutrino	ν_τ tau neutrino	W W boson	

GAUGE BOSONS
VECTOR BOSONS

SCALAR BOSONS