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	≈80.360 GeV/c²	
	0	0	0	±1	
	½	½	½	1	
	νe electron neutrino	νμ muon neutrino	ντ tau neutrino	W W boson	

GAUGE BOSONS
VECTOR BOSONS

SCALAR BOSONS