New particle could be missing force carrier Physicists believe that matter - created by the Big Bang some 14 billion

vears ago – is made up of 12 subatomic particles and six force carriers. One, the Higgs boson, gives matter mass and holds the universe together Atom Nucleus Nucleus is made of neutrons and protons... .which are made up of *quarks* Electron Fundamental particles and forces (year of discovery) **LEPTONS QUARKS** Up 1994 Quarks only exist bound These particles Down exist on their own together 1977 **Flectron** Strange 1947 **Flectron** 1897 Charm 1973 neutrino Bottom 1977 1956 Top 1994 **FORCE CARRIERS** Most matter on earth is made from these four particles Photon Muon 1937 1900 Muon Tau Z boson 1983 neutrino 1962 neutrino W+ boson 1983 Tau 1975 1975 W- boson 1983

> Gluon 1979 2012: New particle could be Higgs boson

These eight particles

are found in cosmic ravs