

LEPTONS

QUARKS

Leptons exist on their own

Quarks only exist combined with other quarks

| | These particles have a single negative charge | The Neutrinos below have a very small mass, they have no charge and rarely interact with other matter | Charge +2/3 | Charge -1/3 |
|---|---|---|---|--|
| These particles are fundamental parts of the matter all around us | The electron is the best known of the leptons. The electrons surrounding an atom are responsible for all chemical reactions. An electric current is a flow of electrons. Symbol e^{-1} | The electron neutrino. Symbol ν_e | The Up quark symbol u Protons and neutrons, the building blocks of all our atoms are made of up and down quarks. A proton is two ups and one down and a neutron two downs and one up | The Down quark symbol d |
| The particles only exist briefly on rare occasions | The muon has similar properties to the electron but it is much heavier. Symbol μ^{-1} | The Muon neutrino. Symbol ν_μ | Charm quark symbol c Similar to the up quark but has more mass | Strange quark symbol s Similar to the down but with greater mass |
| The particles only exist briefly on rare occasions | The Tau is heavier than both the electron and the muon. Symbol T^{-1} | The Tau neutrino. Symbol ν_T | Top quark symbol t Similar to the up and charm but more massive still | Bottom quark symbol b Similar to the down and strange quarks but more massive than both |