

## Physics 12 Four Fundamental Forces

1. There are four fundamental forces in the Universe: Gravity, Electromagnetic, Strong Nuclear and Weak nuclear.



gravity



strong force



weak force



electromagnetism

2. Gravity is the force with which you are most familiar -it is the force of attraction between two objects that have matter (mass). It is the strongest force at large distances. Gravity is the weakest force at small distances.
3. Electromagnetic forces are responsible for the static electric forces and the magnetic forces. These two forces have been related to each other mathematically.
4. The weak nuclear force is the force responsible for the neutron breaking apart into an electron and proton.
5. The strong nuclear force is the force of attraction between protons and protons, protons and neutrons, neutrons and neutron. This force is the dominant force at distances less than  $10^{-15}$  m.