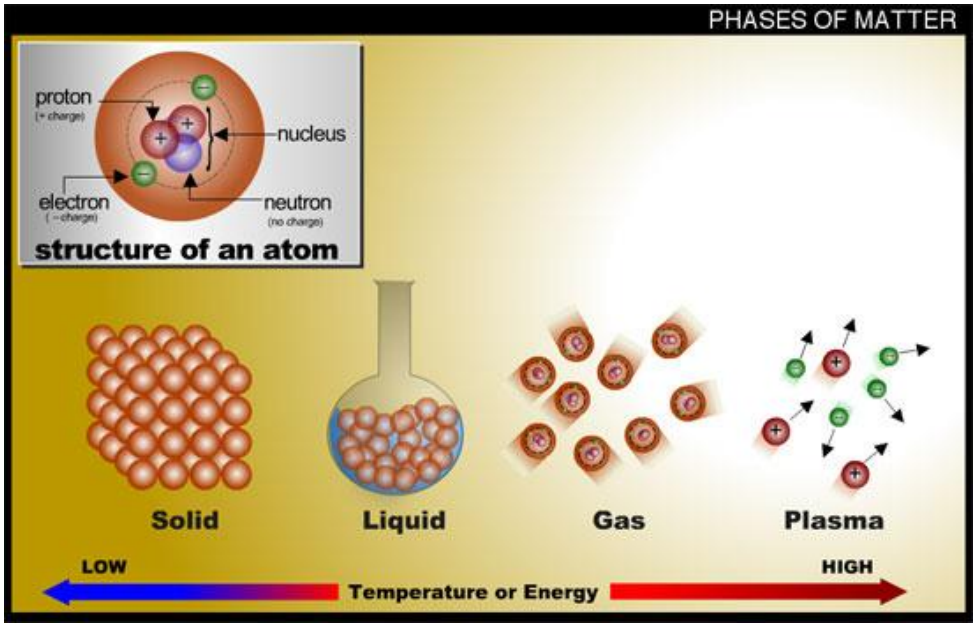
Everything on Earth can be explained in terms of 4 states (phases) of matter-- solid, liquid, gas, and plasma. Plasma is an ionized gas, a gas into which sufficient energy is provided to free electrons from atoms or molecules and to allow both species, ions and electrons, to coexist. In effect a plasma is a cloud of protons, neutrons and electrons where all the electrons have come loose from their respective molecules and atoms, giving the plasma the ability to act as a whole rather than as a bunch of atoms. Plasmas are the most common state of matter in the universe comprising more than 99% of our visible universe and most of that not visible. Plasma occurs naturally and makes up the stuff of our sun, the core of stars and occurs in quasars, x-ray beam emitting pulsars, and supernovas. On earth, plasma is naturally occurring in flames, lightning and the auroras. Most space plasmas have a very low density, for example the Solar Wind which averages only 10 particles per cubic-cm. Inter-particle collisions are unlikely - hence these plasmas are termed collisionless.



The presence of a non-negligible number of charge carriers makes the plasma electrically conductive so that it responds strongly to electromagnetic fields.

See:

http://en.wikipedia.org/wiki/Plasma_(physics)

http://www.youtube.com/watch?v=VkeSI_B5Ljc

http://www.youtube.com/watch?v=LZI8nfA_zsA