Earth Structure

The earth is composed of 4 distinct layers:

1. Inner Core -
   metalic (Fe and Ni) solid center of planet
      spins slightly faster than rest of earth which scientist speculate is the cause of the change in the earth's magnetic field
         result of metal within the electric "motor" created by outer core
Very Dense – more than 3 million times the pressure at the surface of the earth.

2. Outer Core -
   hot, liquid metal spinning very fast = creates earth's magnetic field
      hot liquid metal means that electrons flow freely, creating an electric flow
      Maxwell's Laws told us that a moving electric field creates a magnetic field
   Dense (9 – 10 g/cm^3) Iron (Fe) & Nickle (Ni)

2. Mantle – Density ~ 8 g/cm^3
   large portion of earth's structure of molten rock (magma)
   "plastic" rock layer
   convection cells within layer transfer heat to lithosphere
      can be deformed like a hot, plastic fork

   convection cells here result from uneven heating
      warmer magma rises slowly through layer until it contacts crust
      then magma cools and is pushed aside by warmer magma still rising
      drags crust along with its own movement
         results in divergent and convergent boundaries
2. Crust -
   surface of earth – floats on the mantle – Density ~ 3 to 5 g/cm^3
   broken into 12 large plates and numerous smaller pieces which carry ocean and continental plates
      Continents – mostly Granite – frozen magma
      Oceans – mostly Basalt – frozen lava