1. The solar system is believed to have formed following a supernovae explosion. The heavy elements in our system were produced by the supernovae.
2. As the material began to collapse towards a central point in our solar system, the impacts imparted a ‘spin’ to the material.
3. As the spin rate increased, the material flattened out like a pancake with most of the material remaining in the center of the ‘pancake’.
4. The central part collapsed further and condensed to form our Sun.
5. The outer portion of the nebular condensate formed the planets surrounding the Sun as the material collected under the influence of gravity.
6. The Earth formed as this nebular condensate (meteors included) collected under the influence of gravity.
7. The conversion of PE to KE releases heat and the early formation of the planet released tremendous amounts of heat.
8. In addition, the material surrounding the earth contained short-lived radioisotopes which contributed additional heat to the primordial earth.
9. Collectively, 7&8 caused the earth to melt and differentiate into layers. The heavy material sank and the lighter material rose. This resulted in the ‘Iron Crisis’ which caused further heating of the planet.
10. The inside of the Earth is layered:

11. Scientists figured out what was inside the earth by ‘weighing it’, calculating the average density and comparing it to densities of known rocks. The conclusion was made that something heavy must exist below the uppermost mantle.
12. Fe, Ni and a bit of sulfur are the perfect elements for the inner part of the earth. The density profile is consistent with the picture shown above:

13. Additional evidence supporting the Fe, Ni, S content of the inner/outer core comes from the study of seismology and also magnetism.