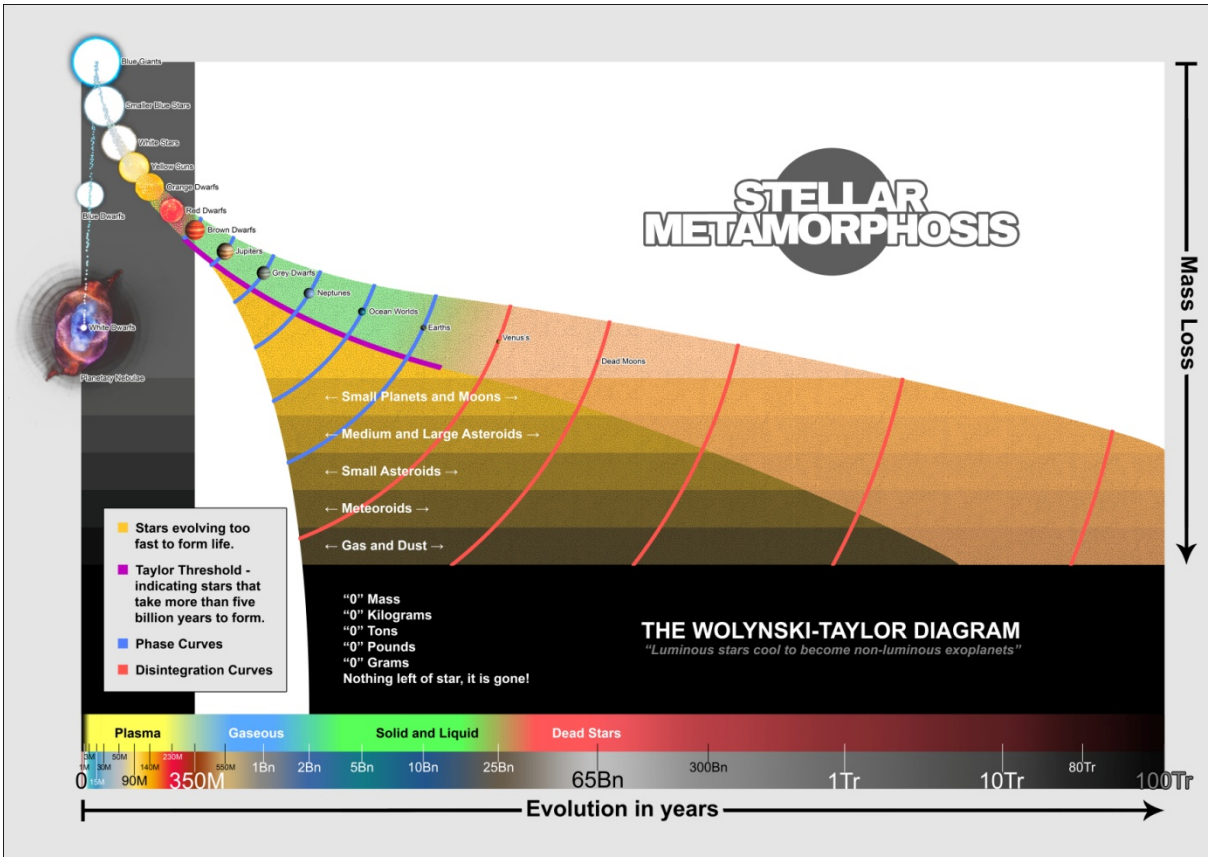
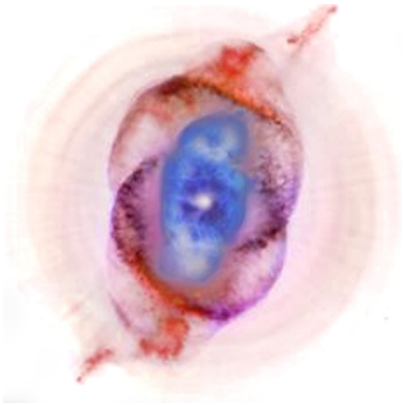
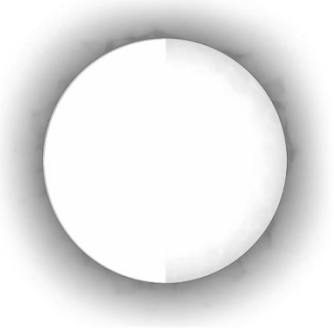
How Planets are Formed, How Stars Evolve

Earth was shaped by the same processes in operation today. Charles Lyell and James Hutton were correct, it is ancient almost beyond measure. But why? This outline should serve as an explanation to that "why." The present is key to the past and much more is written in the sky than in the rocks.

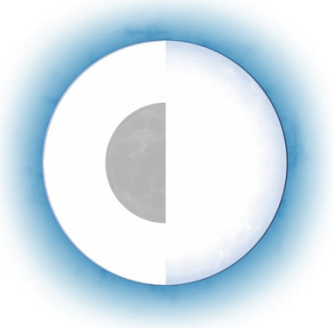




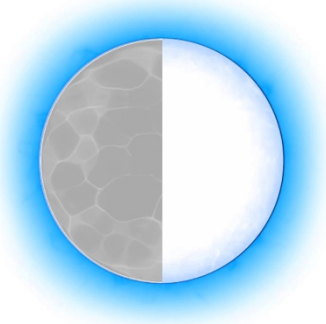
Electromagnetic phenomena in a galaxy's spiral arms causes planetary nebula to form. Planetary nebulae – also called supernovas – birth white dwarf stars via Z-pinch, forming an object that has had its electrons removed becoming electron degenerate matter which is extremely dense.



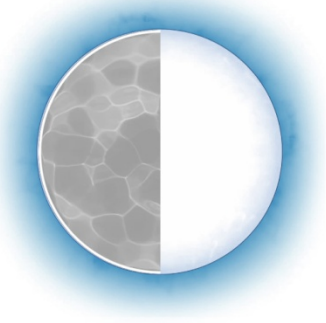
To dissipate the heat of birthing, the white dwarf will begin to expand and cool via thermal expansion. The white dwarf remains homogeneous as it expands and sputters as nova events which are caused by incoming material adding electrons which then combine with the electron degenerate matter, forming stable elements.



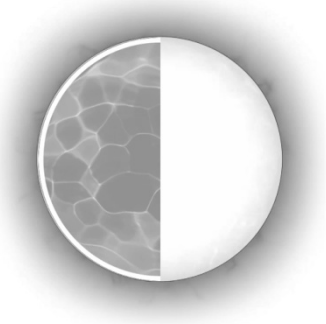
There are no iron cores formed in the early stages of stars, they are composed mostly of highly ionized charged particles and do not have any significant chemical or physical differentiation.



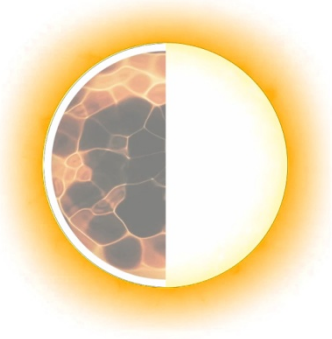
After expanding as big as it can, the star will begin cooling and contracting. The plasma and ions will begin neutralizing into gaseous matter.



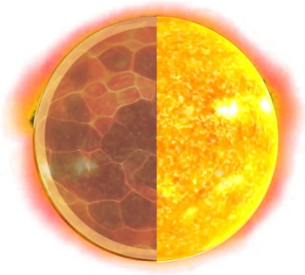
There is no global magnetic field yet. There are multiple magnetic fields which loop around inside the surface of the star only. The strongest chemical bonds begin forming at the white star stage of development. Chemical reactions in the surface begin to rain down and are convected through the stars interior.



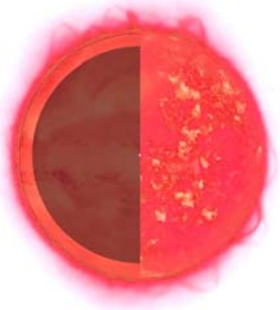
As this heavier material moves towards the center, the star will continue to gravitationally collapse converting gravitational potential energy to heat and light energy which is both trapped internally and radiated away. This in addition to mass loss, causes the star to contract more.



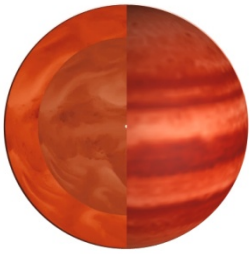
Chemical synthesis speeds up during the yellow star stage. Strong chemical bonds continue forming in the star's surface as well, are subsequently ejected due to mass loss as small molecules such as water, hydroxide or any type of strong ionic or covalently bonded ion or molecule can escape.



More chemical bonds continue to form and rain down into the orange dwarf and change in density, equilibrium and composition. As the plasma undergoes exothermic reactions, it continues to combine into neutral gas and continues to lose this gas to flares and solar wind.

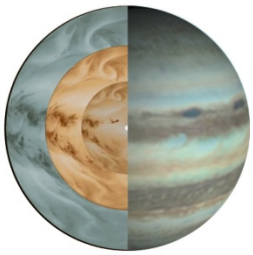


The iron/nickel core will begin forming at the star's center – a global magnetic field begins dominating the star. When a star has cooled beyond its plasmatic state, it will be subject to mass loss resulting from solar radiation and ablation effects of younger hotter stars. The core continues to grow but there is still no chemical differentiation in the region between the core and the outer supercritical gas layers.

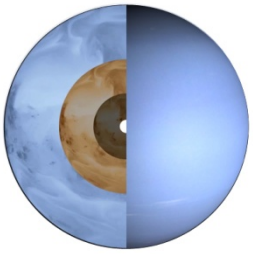


The thick helium /hydrogen atmosphere will continue to dissipate. Heavier molecules formed in earlier stages of evolution will begin raining down into the star composed of hydrogen, oxygen, carbon, nitrogen and magnesium.

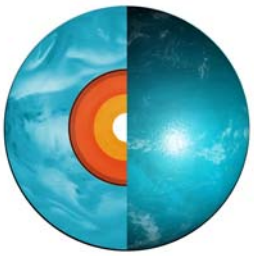
The internal regions previously undifferentiated now begin to differentiate by the weights of supercritical silicates and aluminum compounds which are really hot and highly pressurized. This is also the stage with which hydrogen starts combining with oxygen in large amounts, forming water deep in the interior of the star.



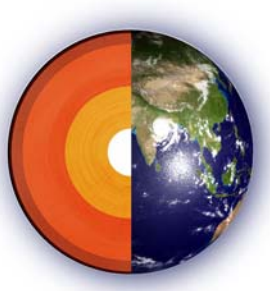
By the grey dwarf stage, the iron/nickel core is fully developed. The first layer surrounding the core is still a supercritical fluid comprised of silicates, sulfides and minerals like pyroxene and schreibersite. The inner layers are composed of supercritical nitrides, nitrates and carbonates as well as much larger amounts of highly pressurized water. The outer layer consists of hydrogen and helium, hydroxides, oxides etc.



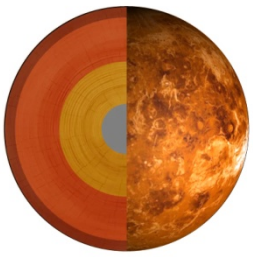
Now the central core begins cooling. The star will be a lot colder on the outside and will start radiating less and less. The surface of the developing Earth begins to form on the hot central core. Surrounding the core is a layer of supercritical water and hydrogen compounds, oxygen and nitrogen. The outer layers are composed of ammonia and a wide range of hydrocarbon compounds such as methane, ethane, propane, butane etc that rain down with increasing pressure towards its lower regions. Diamonds also form in the atmosphere which rain down and deposit in the newly forming crust of the core alongside the hydrocarbon rains (in some cases) which were formed from a type of chemical vapour deposition process.



Compounds continue to form and rain down to the mantle's newly forming outer crust leaving behind a thick ocean of water and huge land masses which are still in magma form, such as basaltic and granitic magmas. The deep crustal magmas begin crystallizing in layers and folding, mixing and trapping the previous hydrocarbons and diamonds that were rained down from previous stages, forming the outer crust of the emerging Earth. When oxygen begins to dominate the atmosphere, it paves the way for plant life to emerge and eventually insects, aquatic and mammalian life forms.



As the heat escapes, the solidification of the interior deepens. The crust begins thickening and the core becomes comparatively larger. The CO2 builds up an acidic atmosphere and the ocean life dies due to the pH being about 4 while the magnetic field dissipates and the oceans evaporate. All life dies.



With no protective magnetic shield, ancient black dwarf stars will have their outer rocky layers continually ablated away by stellar radiation, leaving behind the thick mantle and eventually the solid iron/nickel core which formed in the star's younger hotter stages.

The dead star will wander the galaxy smashing into other dead stars and stellar guts, creating meteoroids and asteroids.