







Leo sits on a cozy blanket in his backyard, peering through his small blue telescope at the shimmering night sky. He begins to wonder where all those brilliant twinkling stars came from and what happens to them as they grow older.





Closing his eyes, Leo imagines himself floating into space in a bright yellow spacesuit. He arrives at a massive, colorful cloud of swirling purple and blue cosmic gas and dust known as a stellar nebula.





Inside the stellar nebula, invisible forces of gravity begin pulling the tiny particles of dust and hydrogen gas closer together. As the gas cloud collapses inward under its own weight, it spins faster and squeezes into a dense, warming ball.





The core of the collapsing cloud gets extremely hot and heavy until nuclear fusion ignites in the center. A dazzling flash of golden light bursts out, marking the triumphant birth of a brand new protostar.





Leo watches the newborn star settle into its main sequence phase, shining steadily like our bright sun. It achieves a perfect balance between the outward push of heat energy and the inward pull of gravity.





After millions or billions of years, the star gradually runs out of hydrogen fuel in its core. The star swells outward like a balloon, expanding into a gigantic, glowing Red Giant.





For average-sized stars, the outer glowing layers gently drift away into space like smoke rings, creating a colorful planetary nebula. Left behind at the center is a tiny, dense, hot core called a white dwarf star.





Leo then zooms over to witness the ultimate fate of massive supergiant stars. When a massive star reaches the end of its life, it collapses violently and explodes into a magnificent burst of colorful light called a supernova.





The brilliant supernova explosion scatters heavy elements like iron, carbon, and oxygen deep into the galaxy. This recycled stardust floats into space, gathering together to build future planets, moons, and brand new stars.





Floating back down to his backyard under the night sky, Leo closes his telescope with a big smile. He looks up at the glittering cosmos, knowing that everything in the universe—including himself—is made of ancient stardust.