

Jacques sphere of rubberised silk, and only capable

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Jacques Charles Jacques Charles was a French mathematician, physicist, and inventor. His full name is Jacques-Alexandre-César Charles. Charles was born on November 12, 1746, in Beaugency, Loiret, France. And died April 7, 1823, in Paris.

The first job that he had was being a clerk at the Ministry of Finance in Paris. He married Julie Françoise Bouchaud des Hérettes who was 37 years his senior in 1746. He did not have any brothers or sisters, he was a single child. He was the son of Jacques Alexandre Charles and Marguerite Claude Charles. He studied at the Conservatoire des Arts et Métiers, that is a higher education establishment that promotes science and industry. Then on August 27, 1783, Charles launched the first hydrogen-filled balloon using gas produced by the reaction of sulfuric acid on iron filings.

He did not do this on his own he did this with the Robert brothers. When the balloon landed in the French countryside, it was attacked with axes and pitchforks by terrified peasants who believed it to be a monster from the skies. Jacques Charles was the first one ever to travel in a hot air balloon, he was also with Nicholas and Aine Jean Robert. The Charles balloon got up to 3000 feet and traveled about 16 miles in 45 minutes. The balloon was small, a 35 cubic metre sphere of rubberised silk, and only capable of lifting about 9 kg (20 lb). It was filled with hydrogen that had been made by pouring nearly a quarter of a tonne of sulphuric acid onto a half a tonne of scrap iron.

The balloon was filled with hydrogen gas, at first the gas was hot but then it cooled as it was flying. Charles was inspired to study physics in 1779 when Benjamin Franklin visited France. Charles was best known for his studies on

how the volume of gases changes with temperature. He developed several useful inventions, including a valve to let hydrogen out of the balloon and other devices, such as the hydrometer and reflecting goniometer, and improved the Gravesend heliostat and Fahrenheit's aerometer. Charles also had a law.

And it was named "Charles Law," it described how gases tend to expand when heated. This law applies to ideal gases held at a constant pressure, where only the volume and temperature are allowed to change. The formula for this law is $V_i/T_i = V_f/T_f$. He is best known for his formulation in 1787 of one of the basic gas laws, known as Charles's law, which states that, at constant pressure, the volume occupied by a fixed weight of gas is directly proportional to the absolute temperature.

During the winter of 1787 Charles studied oxygen, nitrogen, hydrogen, and carbon dioxide and found that the volume of all these gases increased identically with higher temperature when pressure was held constant.

Jacques Charles was elected to the Académie des Sciences, in 1795, and then became a professor of physics at the Conservatoire des Arts et Métiers, librarian of the Institute, and, from 1816, president of the Class of Experimental Physics at the Academy.