

# Free niels bohr research paper example

[Education](#), [University](#)



Niels Bohr was born on 7th October, 1885 in Copenhagen as the son of Christian Bohr and Ellen Adler. Niels had an older sister called Jenny a younger brother called Harald. He was brought up in an environment that favored his genius status development. His father was a well known physiologist and was responsible for arousing his interest in physics while his mother came from a family with a good background in the field of education. Jenny was a teacher while Harald was a mathematician and a footballer. Together with Harald, Niels played a number of matches with Niels as the goalkeeper (Nobel Media).

Bohr went to Gammelholm Latin School when he was seven of age and in 1903 he enrolled as a student at the Copenhagen University studying physics. Bohr studied under the guidance of Professor Christian Christiansen who was the only professor of physics in the university. Other than physics, Bohr also studied mathematics, astronomy, and philosophy (PBS).

In 1905, Bohr participated in a gold medal competition to investigate a method that could be used to measure the liquid surface tension. To achieve this, Bohr carried out a series of experiments in his father's laboratory where he made his own glassware, test tubes. The essay that he developed from the experiments won the competition, and the findings were published by the Royal Society in London (PBS).

Harald was the first person among the Bohr's siblings to earn a master's degree in April 1909. It was nine months later that Nielsearned his master's degree, which he was working on a topic the electron theory of metals. For his Doctor of philosophy thesis, Bohr extended his master's thesis, which was accepted in April 1911. Although his thesis was groundbreaking, it did not

attract much interest since it was written in Danish as was required at the time in the Copenhagen University. In 1921, Hendrika Johanna van Leeuwen who was a Dutch physicist independently developed a theorem called Bohr-van Leeuwen theorem from the Bohr's thesis (Nobel Media).

Bohr met Margrethe Nørlund in 1910, and they got married in a civil ceremony in 1912. They had six sons where two of them died during their childhood, one from a boating accident while the other one from childhood meningitis. The other sons became successful in different fields of study such as law, engineering, and physics (Nobel Media).

In 1911, Bohr stayed at Cambridge, where he followed the experimental work that was being conducted in the Cavendish Laboratory under the guidance of Sir J. J. Thomson. At the same time, he followed up his own theoretical studies. In 1912, he worked in a laboratory under Professor Rutherford where he conducted a theoretical piece of work concerning alpha rays absorption. This work was published in 1913 in the Philosophical Magazine. Bohr conducted a lectureship in the field of physics at Copenhagen University in 1913-1914 and in the Victoria University, in 1914-1916. He was appointed as a theoretical physics professor at Copenhagen University in 1916. The university established for him the institute for theoretical physics where he was the head of the institute. It was his work on the structure of atoms that led to him being awarded a Nobel Prize for 1922 (Nobel Media).

The greatest contribution by Bohr to modern physics is undoubtedly the atomic model. The atomic model that was provided by Bohr described an atom as a small and positively charged nucleus, which is surrounded by

electrons that orbit around the nucleus. He was the first scientist to discover that electrons orbit in separate orbital around the nucleus with the number of the electrons that are on the outer orbit are the ones that determine the properties of an electron. The chemical element known as bohrium (Bh) located at position 107 on the periodic Table is named after him (Palermo). Other contributions by Bohr include clarification of the problems that are encountered in quantum physics by developing the complementary concept. This enabled him to show how changes in the physics field have deeply affected the fundamental features of the scientific outlook. Bohr also indicated that the change of attitude has consequences that reach far beyond the atomic physics scope and have an impact on all domains of human knowledge. There were several essays that were written on this discussion with two of them having an English title Atomic Physics and Human Knowledge and Essays 1958-1962. In total, Bohr had about 115 publications, which included books and journal publications.

During the World War II, Bohr moved to Sweden and in the last two years of the war he was in England and America where he was involved in the Atomic Energy Project. Bohr used his later years to campaign for the peaceful use of atomic physics, as well as to political problems that came up as a result of the development of atomic weapons. He particularly encouraged the nations to be open with one another. These views were set forth in a letter that he wrote titled ' Open Letter to the United Nations' which was written in June 9, 1950. Niels Bohr was the President of the Royal Danish Academy of Sciences and the Chairman of the Danish Atomic Energy Commission. He died on November 18, 1962 in Copenhagen of heart failure (PBS).

## **Works Cited**

Nobel Media. Niels Bohr - Biographical. 2013. Online. 17 November 2013. .

Palermo, Elizabeth. Niels Bohr: Biography & Atomic Theory. 2013. Online. 17 November 2013. .

PBS. A Science Odyssey: People and Discoveries: Niels Bohr. 1998. Online. 17 November 2013.