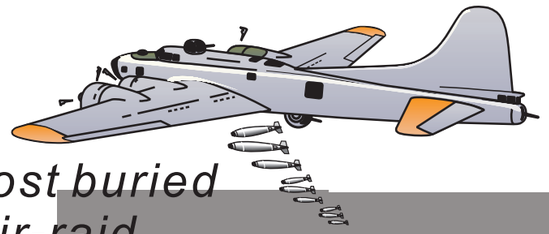
Max Planck

1858 - 1947

Awarded the Nobel Prize for Physics in 1918

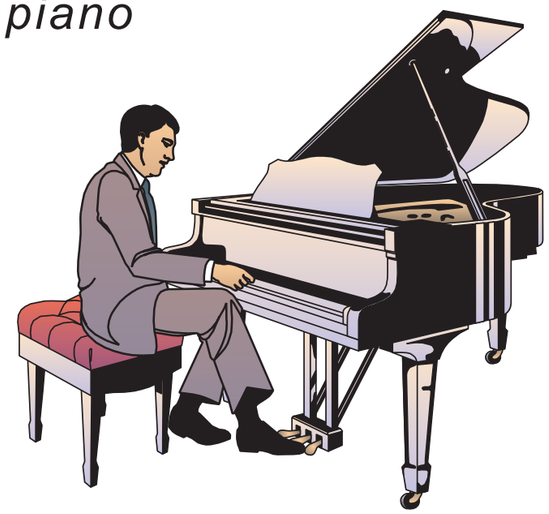
Max Karl Ernst Ludwig Planck, the German physicist, is best known as one of the founders of the Quantum Theory of Physics. He discovered that energy comes in discrete units, each unit being later given the name '***quantum'***, a Latin word translated as ***How much***? He was awarded the 1918 Nobel Prize for his discovery of this element of action - the quantum.

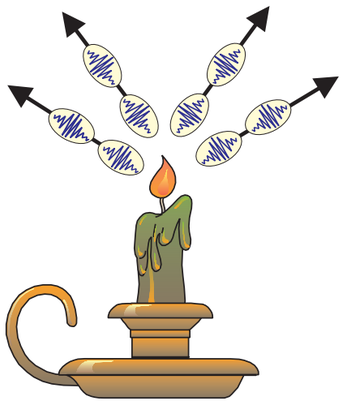
Max Planck was the fourth child of Johann Julius Wilhelm von Plank, a professor of civil law, and Emma Patzig. There were also two children of his father's first marriage in the family. In 1867 the Plancks left Kiel, where Max was born, and moved to Munich. There Max completed the first class of elementary school. **His mathematical talents emerged while he studied at Königliche Maximilian Gymnasium.** As a child he had already displayed a remarkable ability in music; he played the piano and organ very well. Although Max preferred science, music remained his hobby throughout his life. Later, he often held private concerts in his home. It is said that the famous Albert Einstein participated in these concerts.



He was almost buried alive in an air-raid shelter

He played the piano very well





He discovered that radiation comes in 'blobs'

Planck entered the University of Munich in 1874, and decided to study mathematics, but soon he was attracted by the problems of theoretical physics. He received his PhD at the University of Berlin in 1879. His early research was in thermodynamics, followed by work in mechanics, optics and electricity. After a short period of teaching he was appointed as an Extraordinary Professor at the University of Kiel and in 1889 he was awarded a chair in the University of Berlin where he remained until his retirement in 1926.

Whilst at Berlin, Planck turned his attention to the problem of 'the black body radiation of heat'. The black body is an object which ***'absorbs all frequencies of radiation when heated and then gives off all frequencies as it cools'.*** The problem was that the theory could not describe black body radiation over the whole range of frequencies. Planck successfully found the solution. He assumed that Nature was being selective in the amount of energy it would allow a body to accept and to emit, allowing only those amounts that were multiples of $h\nu$ i.e. quanta, where ν is the radiation frequency, and h - is the so-called Planck constant, equal to 6.62×10^{-27} *erg sec*.

Planck's personal life was beset by tragedy. In 1887 he married Marie Merek and they had a son and two daughters. From his second marriage, in 1911, he had one son. Both of his daughters died at an early age. His elder son died after being wounded during World War I. His younger son Erwin was a secretary of state in an early German government. He was executed in 1945 for suspected complicity in an attempt to assassinate Hitler. Once, on a lecture tour, Planck was buried for hours in an air-raid shelter. His own house, with all his books and papers, was destroyed by the allied bombing of Berlin in 1944.

He spent his last days in Göttingen in the home of his grand-niece and died there in 1947.

S.E.