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## Prove

🔊 Listen

While science cannot "prove" its knowledge, its conclusions are still accepted and durable,

Scientific knowledge can only be "proven" within the accepted reference frame, however, some of the fundamental assumptions may change over time and thus the "proof" can also be transformed. To use but two examples: It had been considered for a long time that velocities can be added as vectors - Newtonian physics uses this assumption. However, with the emerge of the theory of relativity, it became evident that this assumption is only valid for velocities significantly below the speed of light. Likewise, calorique and phlogiston had been for certain periods assumed imponderable substances - heat is nowadays described as a form of energy.

Stories where this aspect plays an important role are:

- › By systematic use of highly sensitive scales, Lavoisier developed his keystone assertion, that mass in chemical reactions is unchanged.  
[Lavoisier and the conservation of mass](#)
- › The dutch physician Christiaan Eijkman is trying to cure people from a strange illness. Beri-Beri was known in the dutch colonies for a long time, but researchers were unable to identify the cause for the disease. The history of finally understanding cause and effect of Beri-Beri is far from being straightforward.  
[Christiaan Eijkman: Simplex non veri sigillum](#)
- › Looking at the results of his chemical experiments, John Dalton notices that he has produced both, answers and (new) questions. He wonders, whether there is something like a superior principle...  
[Dalton and the Atoms](#)
- › "The notorious scurvy" is maybe the best-known illness from which seamen of all times suffered. James Lind, a ship's doctor, was able to find the cause of the scurvy by employing a highly systematic approach: a comparative, experimentally-based study on his patients. More details can be found in the narration  
[Lind and scurvy](#)
- › The sheer multitude of chemical elements is very challenging to chemists in the 19th century. They ask themselves, whether there are still yet undiscovered new elements. A Russian solves part of the mystery with an interesting approach.  
[Dimitris Periodentraum](#)
- › Here, a fictive dispute between Democritus and Plato shall represent the counterpart images in the antiquities on the composition of matter. It is remarkable, that Democritus, whose idea on the subject would be far more acceptable after modern standards, could not outmatch his counterpart Plato. It was not until around 1800, when his model and the idea of smallest undividable pieces was rediscovered.  
[Democritus and the Atoms](#)
- › Can something like a NOTHING really BE in existence? This story tells you about the german mayor von Guericke and his losing game to prove the existence of the vacuum.  
[Guericke and vacuum](#)
- › What would be a suitable model to describe the likeness of an atom? Rutherford's experimental findings were in contradiction to the theories represented by his PhD thesis advisor J.J.Thompson. Sitting over Christmas dinner 1911 he has an idea...  
[Ernest's Nuclear Atom](#)

Europa-Universität Flensburg  
Auf dem Campus 1  
24943 Flensburg  
Germany



Phone: +49 461 805 02  
Fax: +49 461 805 2144  
Internet: [www.uni-flensburg.de](http://www.uni-flensburg.de)