

## Louis Pasteur

Louis Pasteur was born on 27<sup>th</sup> December 1822 and died on 28<sup>th</sup> September 1895. He was a famous French chemist and biologist. He is considered to have founded the science of microbiology.

He was born in a small town in France near the Swiss borders. In 1847, he got his doctorate in science from the Ecole Normale in Paris. After teaching in a couple of cities in France, called Dijon and Strasbourg, Pasteur was offered to head the science department and became a professor of chemistry at the Lille University in 1854.

A main emphasis of the department of science that Pasteur was heading was finding ways to apply science to solve practical and real problems that industries were facing. As there were a lot of breweries and distilleries in Lille, this made Pasteur start researching why alcoholic drinks, such as beer and wine, had a sour taste. After researching this process, which is called fermentation, and against popular belief, Pasteur showed that there are tiny organisms living in the air, bacteria, made the wine and beer go sour. Before Pasteur, it was believed that the bacteria were the result of decay and things going bad. They did not think that the bacteria, these micro-organisms (tiny organisms) were the cause of the decay and the things tasting sour. Pasteur examined this process and found out that the bacteria could be removed by boiling the liquid then cooling it. He, then, took this research and applied it to the study of milk to prove that the same process took place. He proved that to get rid of the bacteria and prevent the milk from going bad, the milk would need to be boiled at a high temperature and then cooling it. This process is known as pasteurization.

After solving the problem of the breweries, he started examining where the bacteria came from. Some people believed that the bacteria or germs would just spontaneously generate, which means to just appear or be produced from nothing in the substances themselves. However, Pasteur proved that the presence of microorganisms, which are the germs, generated in the substances from the environment. He, thus, disproved the theory of spontaneous generation.

In 1865, Pasteur was asked by the silkworm industries to help find a solution for the infected silkworms, as this disease that had spread among the silkworms was ruining the silk industry in France. He identified the type of infections or germs that were causing the disease and how to treat it. The silk industry was saved.

Later on he started building on the research of fermentation and spontaneous generation by showing that the source of disease is similar to the origin and process of fermentation. At the time, many scientists and physicians did not believe that germs, such tiny organisms, could cause disease or kill larger organisms. However, he proved that germs played a major role in causing disease, decay, and death. He showed that most infectious diseases are caused by germs that attack the body from outside. This is called the 'germ theory of disease.'

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## **Louis Pasteur (Cont'd)**

He extended this theory to explain many other infections that were causing certain diseases, such as anthrax, tuberculosis, cholera, etc. To treat these diseases, Pasteur experimented first with animals to show that by giving the animal a very mild vaccination with weak germs, it could give the animal a sort of immunity to the disease. He worked on investigating the various diseases in order to develop vaccinations.

Pasteur is mainly known for his vaccine against rabies. In 1885, he succeeded in inoculating a boy who was badly bitten by a rabid dog. The boy was treated and since then people have been saved by this treatment.

In 1888, people from all over the world donated to build the Pasteur Institute, which was founded to develop vaccines and be a major research center. Pasteur directed the Institute till he died.

Name \_\_\_\_\_

Date \_\_\_\_\_

## Louis Pasteur Questions

### Multiple Choice:

1. Louis Pasteur was:

- a. Considered to have founded the field of microbiology
- b. Created vaccines against rabies and other diseases
- c. A professor of chemistry
- d. All of the above

### Matching:

\_\_\_\_\_ 3. Germ theory of disease

a. The theory that holds that bacteria just appear or are produced from nothing in the substances themselves

\_\_\_\_\_ 4. Spontaneous Generation

b. The process of boiling milk at a high temperature then cooling it in order to prevent the milk from going bad

\_\_\_\_\_ 5. Pasteurization

c. Most infectious diseases are caused by germs that attack the body from outside

### True or False:

\_\_\_\_\_ 6. Some scientists at the time of Pasteur did not believe that such tiny things as germs could kill larger organisms as humans.

\_\_\_\_\_ 7. Pasteur showed that by giving an animal a very mild vaccination with weak germs, it could give the animal a sort of immunity to the disease.

\_\_\_\_\_ 8. Pasteur is known mainly for his vaccine against radiation.

\_\_\_\_\_ 9. Pasteur disproved the theory of spontaneous generation.

\_\_\_\_\_ 10. Pasteur developed a vaccine against rabies.

## Louis Pasteur Answers

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