

*Kazakh-Russian  
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**INDEPENDENT WORK**

*Theme: Robert Koch*

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Robert Koch was born in 1843. Koch worked on anthrax and tuberculosis (TB) and he further developed the work of Louis Pasteur . Koch came from a poor mining family and it took him a lot of determination to get a university place where he first studied mathematics and natural science and then studied medicine.





\* Koch was a doctor and he had a detailed knowledge of the human body - something that Pasteur, as a research scientist - lacked. He was also skilled in experiments, the result of his work in natural sciences. Qualities that also proved to be important were his ability to work for long periods of time and his patience. However, Koch was also difficult to work with and could not tolerate anyone telling him that his theories were wrong.

**\* In 1872, Koch became district medical officer for a rural area near Berlin. He started to experiment with microbes in a small laboratory he had built for himself in his surgery.**



\* Koch developed a new experimental method to test whether a particular micro-organism is the cause of a disease. Building on Pasteur's work on germ theory, Koch used experiments to prove that the bacterium *Bacillus anthracis* was the cause of anthrax - the bacterium could be observed in the tissue of anthrax victims.





\* He extracted this bacterium from a sheep which had died of anthrax, grew it and injected a mouse with it. The mouse developed the disease as well. Koch repeated this process over 20 generations of mice, before he announced in 1876 that he had proved this bacterium caused anthrax.

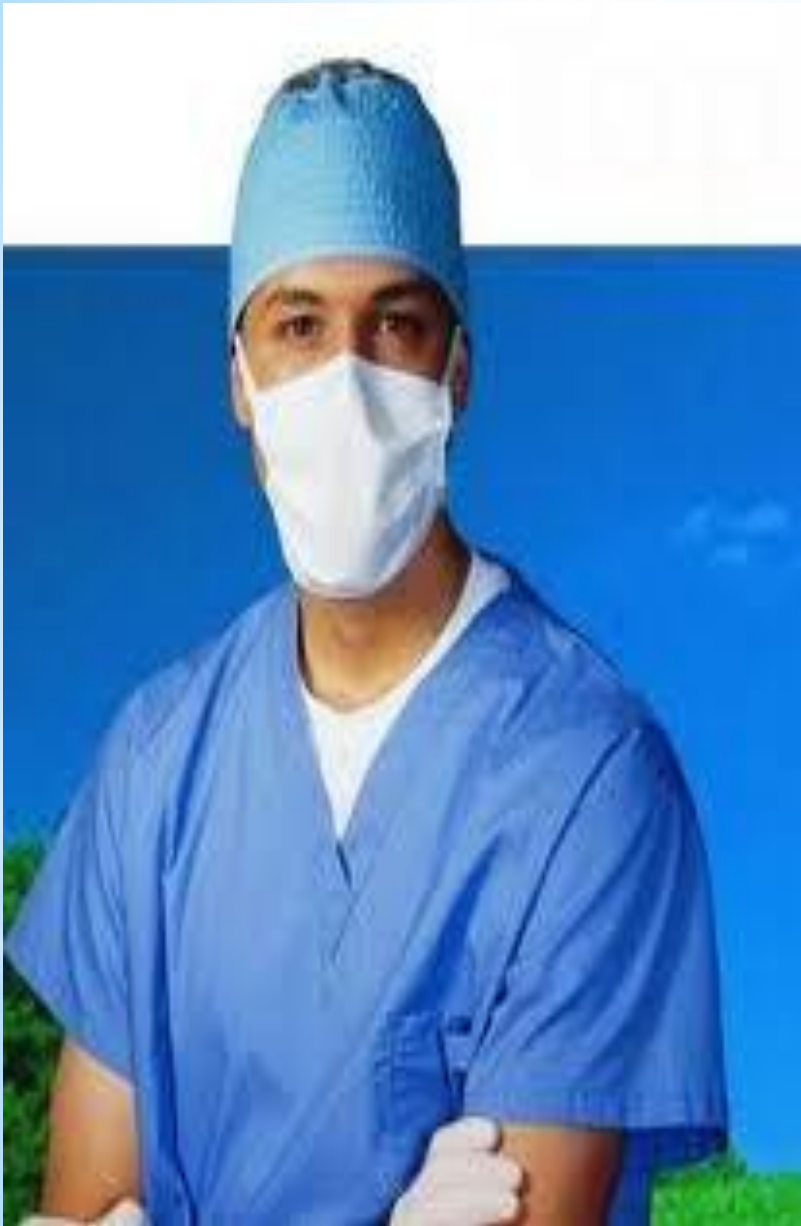
\* Koch continued to improve his methods and techniques. By solidifying liquids such as broth with gelatine and agar, for instance, he created a solid medium for growing bacteria which was easier to handle than the liquids used by Pasteur. Koch's assistant Julius Richard Petri (1852-1921) developed the Petri dish, which made the observation of bacteria even easier.





\* Koch and his team also developed ways of staining bacteria to improve the bacteria's visibility under the microscope, and were able to identify the bacterial causes of tuberculosis (1882) and cholera (1883). Adopting Koch's method, other researchers were able to identify the bacteria that caused diseases such as typhus (1880), tetanus (1884) and the plague





The German doctor Robert Koch is considered the founder of modern bacteriology. His discoveries made a significant contribution to the development of the first 'magic bullets' - chemicals developed to attack specific bacteria - and Koch was awarded a Nobel Prize in 1905



**\*The end !!!**

