

# Map for the pirate battleship game



## Short biography of famous scientists



*Who am I:* Maria Goeppert-Mayer, born 1906, in Germany. I studied in Göttingen and moved to the US in 1930, where I worked in Chicago and Los Alamos on the Manhattan Project.

*What did I do:* I invented a mathematical model for nuclear shells and showed the existence of magic numbers (2, 8, 20, 28, 50, 82, and 126), where nuclei are particularly stable. I won the Physics Nobel Prize in 1963 for it.

*A fun fact about me:* When I was 24, I finished my doctoral thesis and predicted the phenomenon of two-photon absorption in atoms, which was experimentally verified only 30 years later in 1961 after the laser had been invented.



*Who am I:* Marie Curie, born 1867 in Warsaw, Poland. I studied and worked in Paris all my life, where I also met my husband Pierre Curie.

*What did I do:* I worked on the physics of radioactive decay and received both the Physics Nobel Prize in 1903 as well as the Chemistry Nobel Prize in 1911. I produced and isolated two new elements, “Polonium” and “Radium”, and developed methods to characterize their properties, in particular with regards to their therapeutic use.

*A fun fact about me:* I named the first chemical element that I discovered “Polonium” after my native country Poland.



*Who am I:* Emmy Noether, born 1882 in Erlangen, Germany. I lived and worked in Germany at the University of Göttingen until the Nazis revoked my position and I emigrated to the US, where I worked at Bryn Mawr College (PA). Albert Einstein wrote about me that: “Miss Noether was the most significant creative mathematical genius thus far produced since the higher education of women began.”

*What did I do:* I laid the foundations of new mathematical theories by developing abstract algebraic languages. In physics, I discovered the Noether theorems, which state that every continuous symmetry (such as translation, rotation, time invariance) results in a conserved quantity (momentum, angular momentum, energy).

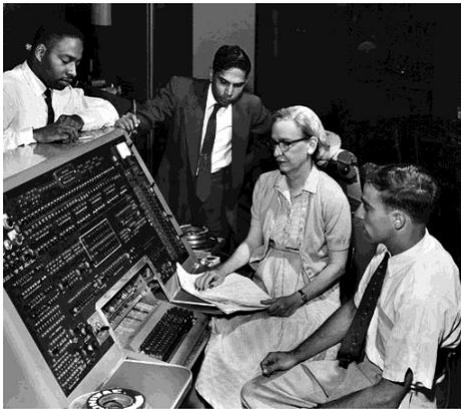
*A fun fact about me:* When I was 33, I was invited to become a professor at the University Göttingen by two of the most famous mathematicians of the time (Hilbert and Klein). The philosophical faculty, however, blocked my appointment (I would have been first female professor), and during the first few years I was not paid and my lectures were announced in Hilbert's name. My students were called the "Noether boys".



*Who am I:* Sofia Kovalevskaya, born 1850 in Moscow, Russia. I was a mathematician who was also the first woman to receive a doctorate in a European university, in Göttingen.

*What did I do:* I discovered important new theorems in mathematics, including the Cauchy-Kovalevskaya theorem. I also solved the problem of the motion of a special kind of spinning top, called now called the "Kovalevskaya top."

*A fun fact about me:* In addition to my mathematical work, I wrote a memoir, a novel, and two plays.



*Who am I:* Grace Murray Hopper, born in 1906 in New York City. I was a pioneer in computer science and I served in the US Navy, achieving the rank of Rear Admiral.

*What did I do:* I invented the first compiler for computer programs, which showed that computers could do more than just arithmetic. I also developed the programming language COBOL, which is still used today.

*A fun fact about me:* The US Department of Energy named a supercomputer in my honor, and the Navy named a ship

after me.



*Who am I:* Donna Strickland, born in 1959 in Guelph, Canada. I am an optical physicist and professor the University of Waterloo.

*What did I do:* I was an inventor of the technique of chirped pulse laser amplification, which earned me the Nobel prize in 2018. This technique allows scientists to make extremely powerful and ultrashort laser pulses that can be used to study phenomena in plasma physics and other fields.

*A fun fact about me:* I am the third woman ever to win the Nobel prize in physics, and the first to do so in the past 55 years.

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Message 1:

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Message 3:

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Message 5:

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Message 7:

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