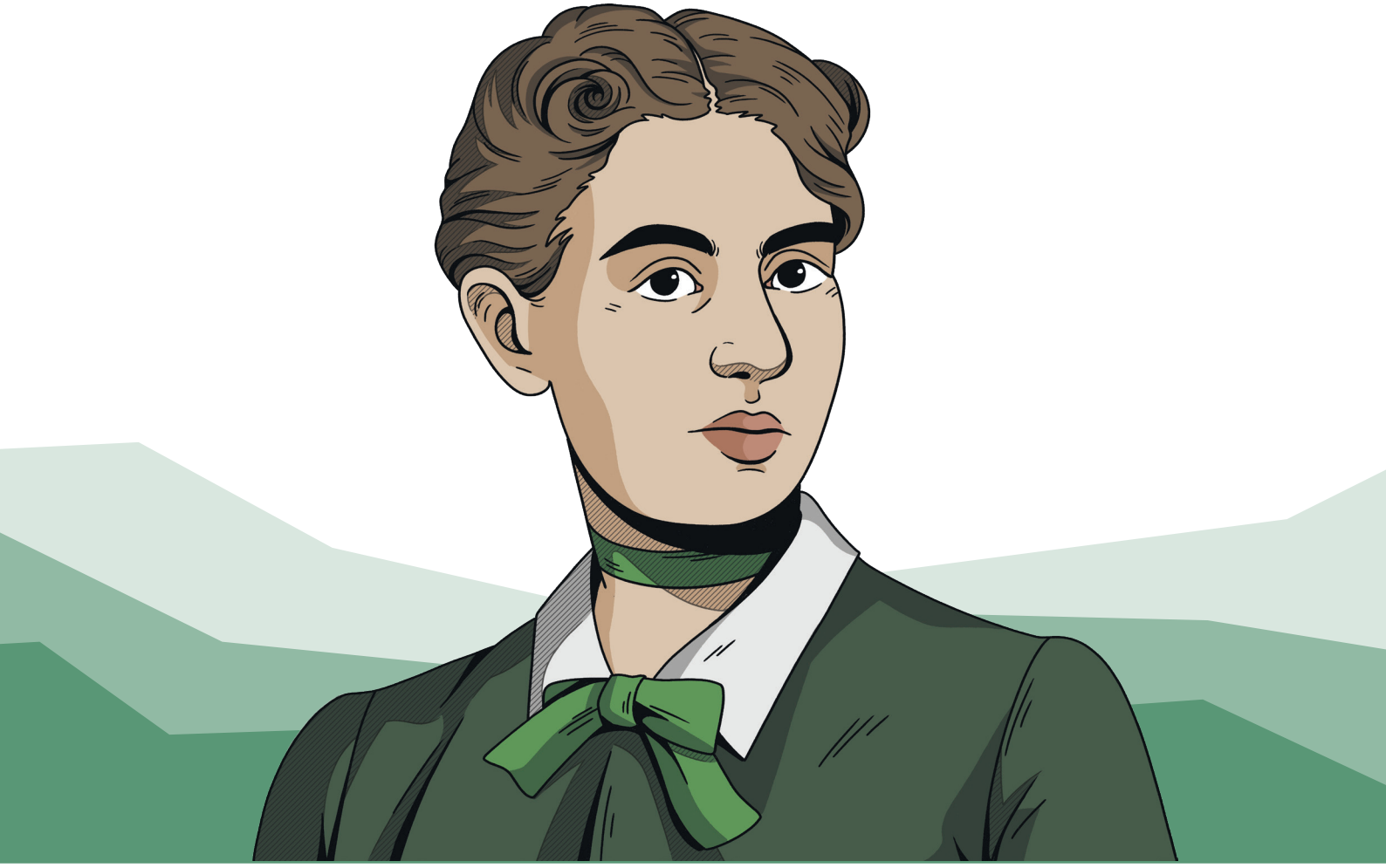
Sophie Germain **(1776 – 1831)**



Marie-Sophie Germain, more commonly known as Sophie Germain, was born in Paris, France in 1776. In 1789, the French Revolution broke out and Germain, at age 13, was forced to stay inside as the streets of Paris were not safe. Germain took refuge in her father's library.

There, she read of Archimedes' passion for maths and decided she too must become a mathematician. Her parents disapproved, telling her it was not a suitable occupation for a girl. Germain pursued her studies, often secretly at night, teaching herself Latin and Greek to allow her to read more advanced books. Her parents accepted her choice when they found her asleep in the library, which was so cold that the ink had frozen solid in the ink well.

While some mathematicians respected and supported Germain in her work, many didn't treat her with the respect she deserved. On one occasion, she was told that she should not be reading a study about the history of astronomy. Instead, it was suggested she read "Astronomy for Ladies", a book that does not contain a single mathematical equation. Nevertheless, Germain did correspond and work with many celebrated mathematicians, including Lagrange and Gauss.

One of Germain's greatest achievements was her work on Fermat's Last Theorem, which let to the discovery of Sophie Germain primes. A number, p, is a Sophie Germain prime, or a safe prime, if $2p + 1$ is also prime. For example, 3 is a Sophie Germain prime as $2 \times 3 + 1 = 7$, and 7 is also prime.

Germain died in June 1831 from breast cancer. Her death certificate listed her not as a mathematician or scientist, but as a property holder.