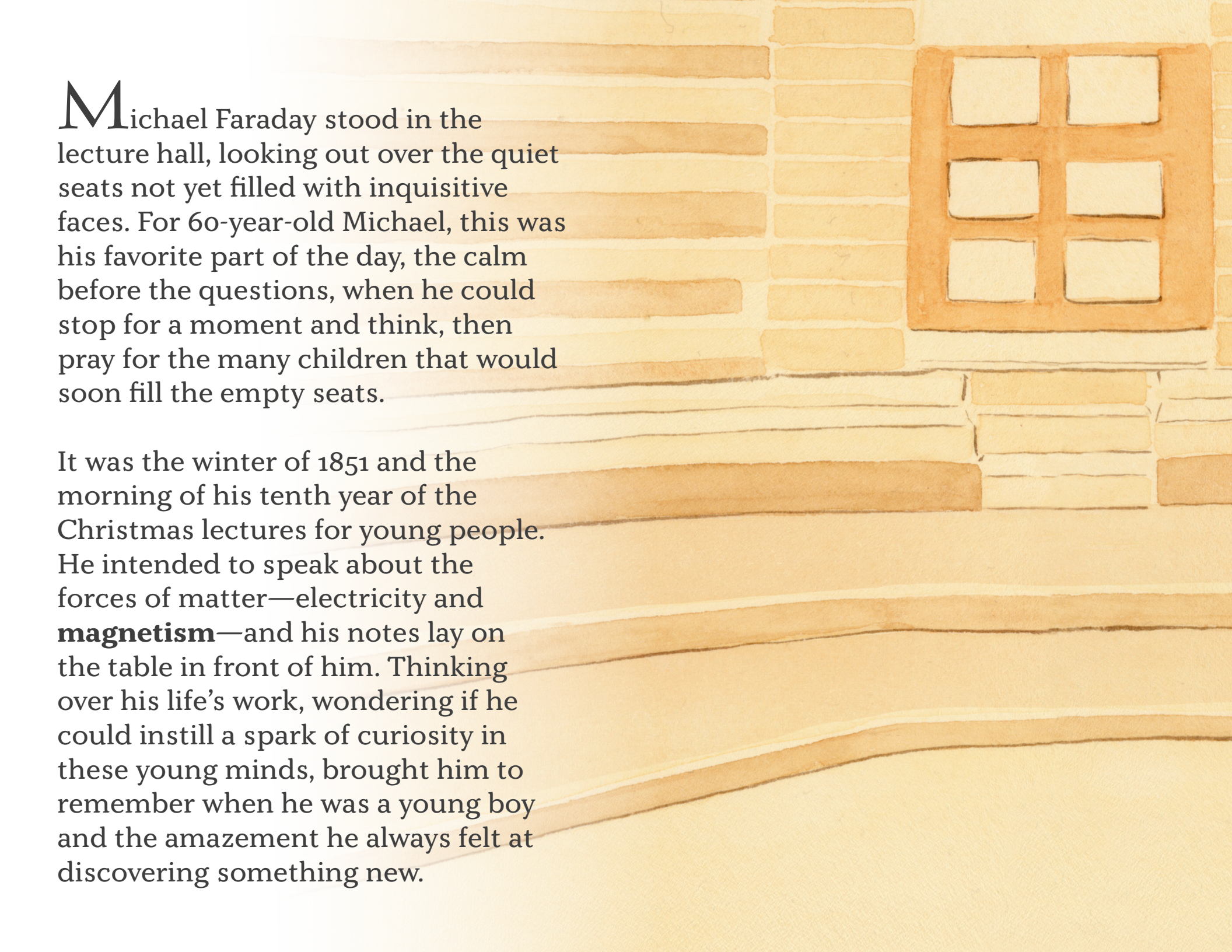
THE SPARK

by Shannen Yauger

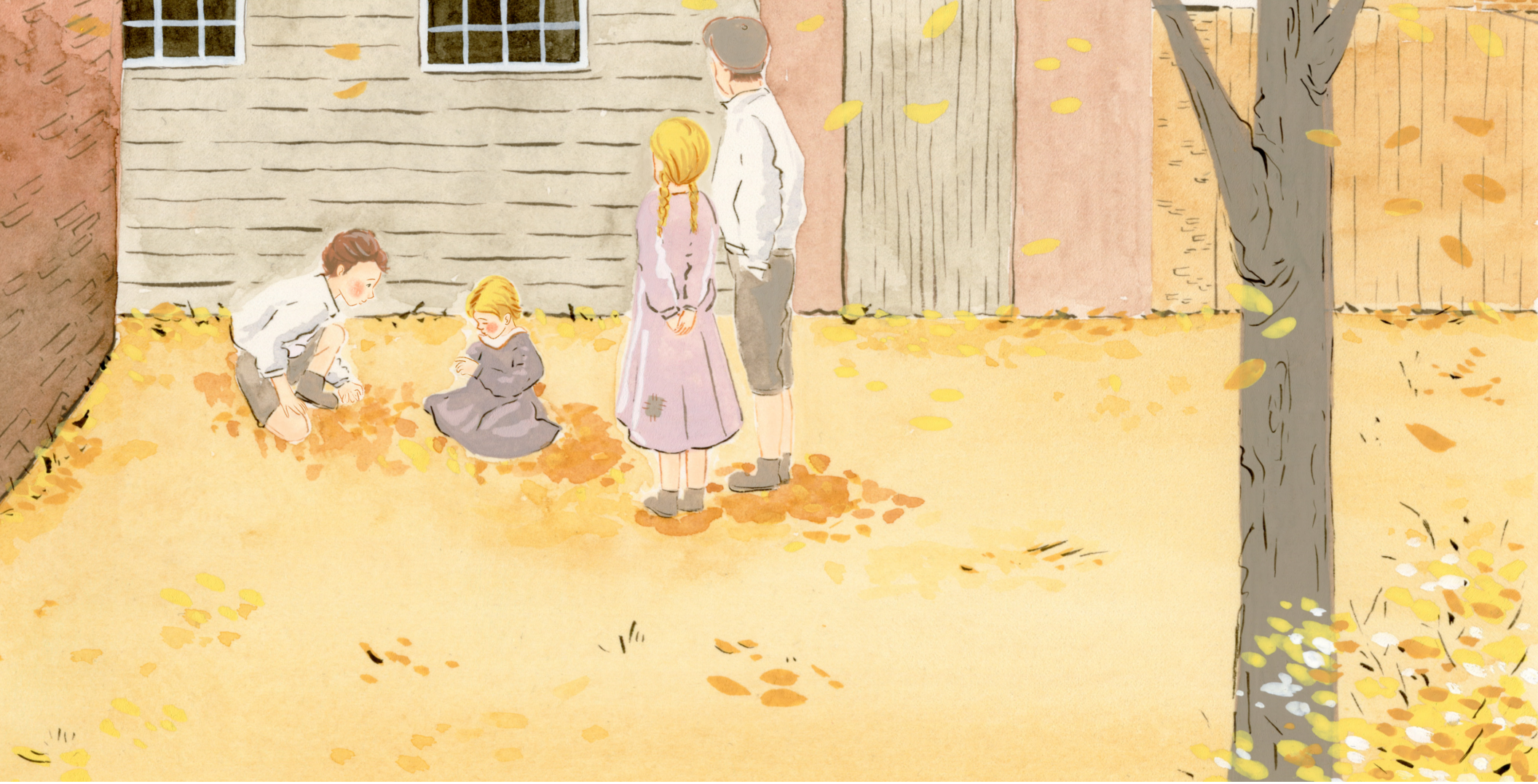


THE GOOD AND THE BEAUTIFUL LIBRARY



Michael Faraday stood in the lecture hall, looking out over the quiet seats not yet filled with inquisitive faces. For 60-year-old Michael, this was his favorite part of the day, the calm before the questions, when he could stop for a moment and think, then pray for the many children that would soon fill the empty seats.

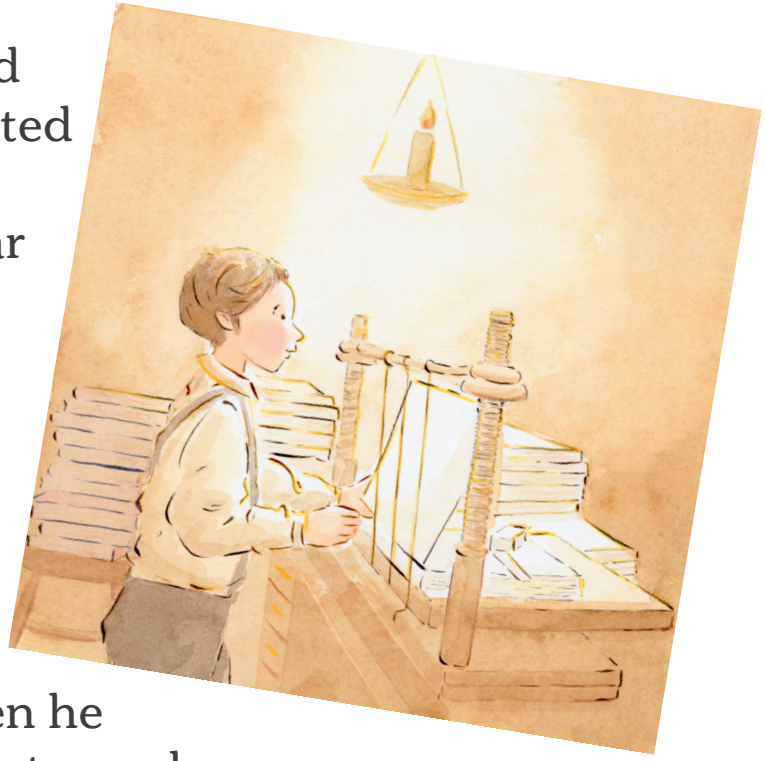
It was the winter of 1851 and the morning of his tenth year of the Christmas lectures for young people. He intended to speak about the forces of matter—electricity and **magnetism**—and his notes lay on the table in front of him. Thinking over his life's work, wondering if he could instill a spark of curiosity in these young minds, brought him to remember when he was a young boy and the amazement he always felt at discovering something new.



Michael grew up with very little money. As a boy he could often be found playing with his younger sister, Margaret, while his older siblings, Robert and Elizabeth, looked on. While food was often scarce—sometimes only a loaf of bread for the week—their faith in God sustained them. The children cared for and looked after one another, entertaining themselves out of doors so that their weary mother could rest while their father worked as a blacksmith. Financially the family struggled, but their home was rich in love and compassion.



Unable to receive a formal education outside of rudimentary arithmetic, reading, and writing, young Michael had to find a way to learn on his own. When he was fourteen, he became an **apprentice** to a local bookseller by the name of George Riebau. Michael remembered how hard he had worked. He started off delivering newspapers as an errand boy, and after a year he was made an apprentice bookbinder and stationer. For the seven years that he was an apprentice, he bound and read scientific books of every kind. He could still feel the excitement that would course through his body when he would open a book and begin to work.



He used all that he learned in these books to carefully perform experiments. Laughing a little to himself, Michael remembered one of his first inventions. Using old bottles and lumber, he had managed to build a basic generator. How proud he had been of his accomplishment! It was these early experiments that first sparked Michael's interest in electricity and magnetism, which was one of the joys in his life's work and his focus for today's lecture.



The book of nature which we have to read is written by the finger of God.

Michael Faraday (1859) "Experimental Researches in Chemistry and Physics"

Glossary

apprentice—a person who is learning a trade from a skilled employer, having agreed to work for a fixed period at low wages

animal electricity—electricity generated in the bodies of animals; the ability of living cells, tissues, and organisms to produce electrical fields

electromagnetism—a branch of physics studying electromagnetic force; is one of the four fundamental interactions (commonly called forces) in nature

electromagnetic rotation—the ability to plot a graph for induced current on a wire against the produced magnetic force as it changes at different points on the wire. This gave birth to the early generators and motors.

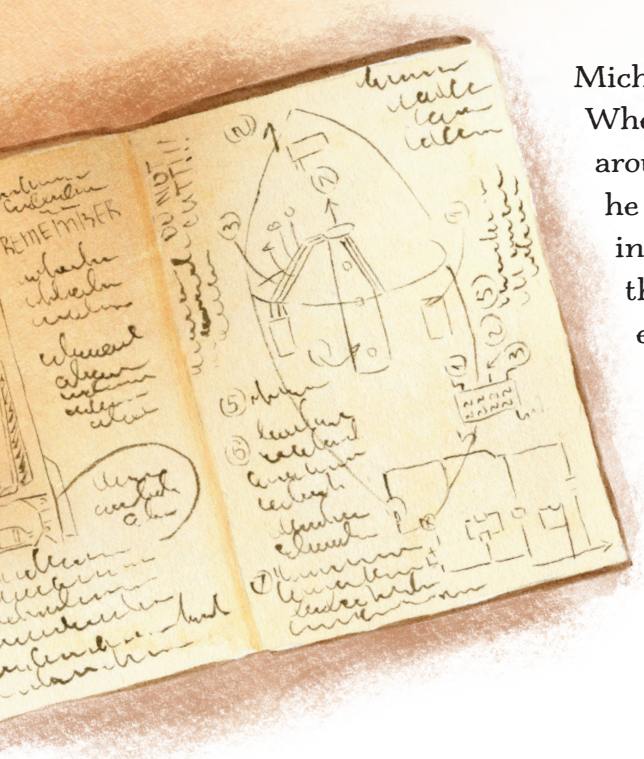
electromagnetic induction—the production of voltage across an electrical conductor in a changing magnetic field; has many uses, including electrical components such as inductors and transformers, and devices such as electric motors and generators

electrostatics—the study of electric charges at rest; involves the buildup of charges on the surface of objects

galvanometer—an instrument for detecting and measuring small electric currents

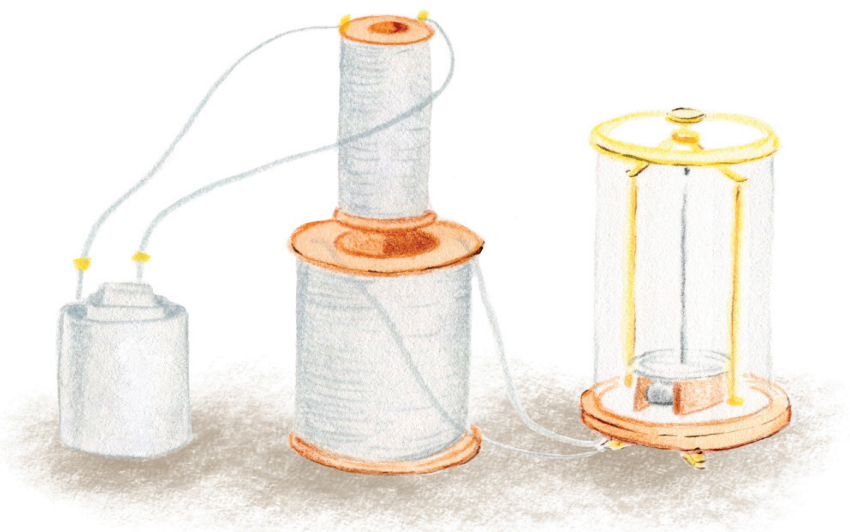
magnetism—the force of electric currents in magnets. Electric currents and the magnetic movements of certain particles will create a magnetic field.

THE SPARK



Michael Faraday's entire life was based around one theme: a spark. When he was young, his passion was sparked by books and the teachers around him. When he was an adult, he created sparks. As he grew older, he became inspired to spark the love of learning and experimentation in the young minds of the future. If it were not for these small sparks, the world today would not have the same ability to harness and create electricity, which fuels everything about modern life. Read this story of one of the greatest scientific pioneers of our time, and perhaps your child will receive the spark he or she needs to become the next innovator and change the world!





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