Subject: Science

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| Year 1 |
| Opportunities- Plants  Famous female scientist:  **Kiara Nirghin**  At the age of 16, Kiara Nirghin won the 2016 Google Science Fair. Her motivation for the project came from a personal experience with a deadly disease caused by drought. Using waste materials such as avocado and orange peels, Nirghin developed a polymer that has the ability to store hundreds of times its weight in water. This low-cost and biodegradable solution helps plants retain moisture during droughts, thereby increasing their chances of survival and reducing food insecurity in areas with limited water resources. Beyond her scientific achievement, Nirghin is also breaking stereotypes and encouraging more women to pursue careers in science. |

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| Year 2 |
| Opportunities- Living things and their habitats 2 (around the world)  Famous female scientist:  **Jane Goodall**  Although Jane Goodall loved animals as a child, she never intended to become a scientist. Her lack of formal training was advantageous when she was sent to the Gombe Stream Game Reserve to observe chimpanzees in their natural habitat. Without the constraints of conventional methods of studying animals, Goodall developed her own techniques, including living among the chimpanzees she was studying and connecting with them on a personal level. Through her work, she learned that chimpanzees make and use tools, form strong bonds between mothers and infants, engage in warfare, and demonstrate compassion. Goodall is now one of the world's leading primatologists and a lifelong advocate for conservation. |

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| Year 3 |
| Opportunities – Plants  Famous female scientist:  **Alice Augusta Ball**  During her short lifetime, Alice Augusta Ball made an important discovery that changed how doctors treat leprosy, a chronic disease that causes skin lesions and nerve damage. The trailblazing chemist was the first Black woman to earn a master's degree from and teach chemistry at the University of Hawaii. Her work revolved around the makeup of plants, particularly Hawaii's native kava plant. The plant had long been used as a topical treatment for the skin, and Ball developed a method for injecting the oil of the plant as a treatment for leprosy.  After Alice Ball's untimely death in 1916 at the age of 24, her research on the treatment of leprosy was taken up by another scientist who published a paper on the subject. He failed to credit Ball for her original work and instead presented her findings as his own. It was not until many years later that Ball's contributions to the field of medicine were properly recognized. |

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| Year 4 |
| Opportunities- States of matter  Famous female scientist:  **Chien-Shiung Wu**  Physicist Chien-Shiung Wu went from a fishing village in China to working on the Manhattan Project in the United States. Dubbed the "First Lady of Physics," she was the first person to confirm Fermi's beta decay theory. As a result, she discovered how to produce large enough quantities of uranium to fuel the atomic bomb. Her experiment on radioactive atoms is known today as the Wu Experiment. She also examined the way red blood cells change to cause sickle-cell anemia.  Famous female scientist:  **Lise Meitner**  Lise Meitner is one of only two women to have an element named in her honor—the element with the atomic number 109 is called meitnerium. (The other is curium, named after Marie Curie.) She was the first physics professor in Germany and the first scientist to include the term 'nuclear fission' in a published paper. During her career, she discovered what causes the Auger Effect, explained how nuclear fission works, and uncovered the element protactinium. Meitner faced significant discrimination as a woman in science and was denied the Nobel Prize in Chemistry, which was awarded only to her collaborator, Otto Hahn, for the discovery of nuclear fission in 1944. |

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| Year 5 |
| Opportunities- Properties of changes and materials  Famous female scientist:  **Dorothy Hodgkin**  British chemist Dorothy Hodgkin fell in love with science as a child after learning about crystals at the age of 10. As a student in England, she studied chemistry and researched how to use X-ray crystallography. This decision proved advantageous, as she used this technology to determine the atomic structures of biomolecules like penicillin, B12, and insulin (a major breakthrough in the treatment of diabetes). She also used X-ray technology to treat World War I soldiers. Perhaps even more notable, she performed her work while suffering from the effects of rheumatoid arthritis, a condition she developed as a young woman.  Famous female scientist:  **Marie Skłodowska Curie**  Marie Curie, who discovered the radio-active elements radium and polonium and coined the term 'radioactivity', ranks among the world's best-known female scientists. She shared the 1903 Nobel Prize in Physics in recognition of her work, making her the first woman to earn the award. After her husband's untimely death, she continued working with radiation and won the Nobel Prize in Chemistry in 1911—the only woman with such an honour and the first person to win two Nobel Prizes in different scientific fields. In addition to her scientific work, Marie Curie was a strong advocate for women's rights and education. She founded the Curie Institutes in Paris and Warsaw, which remain leading centres of research to this day. |
| Opportunities- Forces  Famous female scientist: Katherine Johnson Katherine Johnson graduated from college—with honors—at the same age most people graduate from high school. She later applied to a program at the National Advisory Committee for Aeronautics and earned a spot as one of the agency's human computers. One of Katherine's most important jobs was calculating the trajectory of the first American manned spaceflight in 1961 and the Apollo moon landing in 1969. While [NASA](https://www.coursera.org/articles/nasa-jobs) began using computers for the task in 1962, astronaut John Glenn refused to go into flight until Katherine checked the computer's calculations by hand. |

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| Year 6 |
| Opportunities- animals including humans – living things / evolution / inheritance  Famous female scientist:  **Cynthia Kenyon**  Cynthia Kenyon's work gave the world new insight into how people age. The American molecular biologist was the first person to study the expression profiles of genes, and her innovative 1993 study of gene mutation in roundworms proved that aging is a genetic process. Kenyon's discoveries have opened up new avenues for research into the mechanisms of aging and age-related diseases and have helped to establish the field of biogerontology as a promising area of scientific inquiry. She's currently serving as Vice President of Aging Research at Calico Life Sciences. |