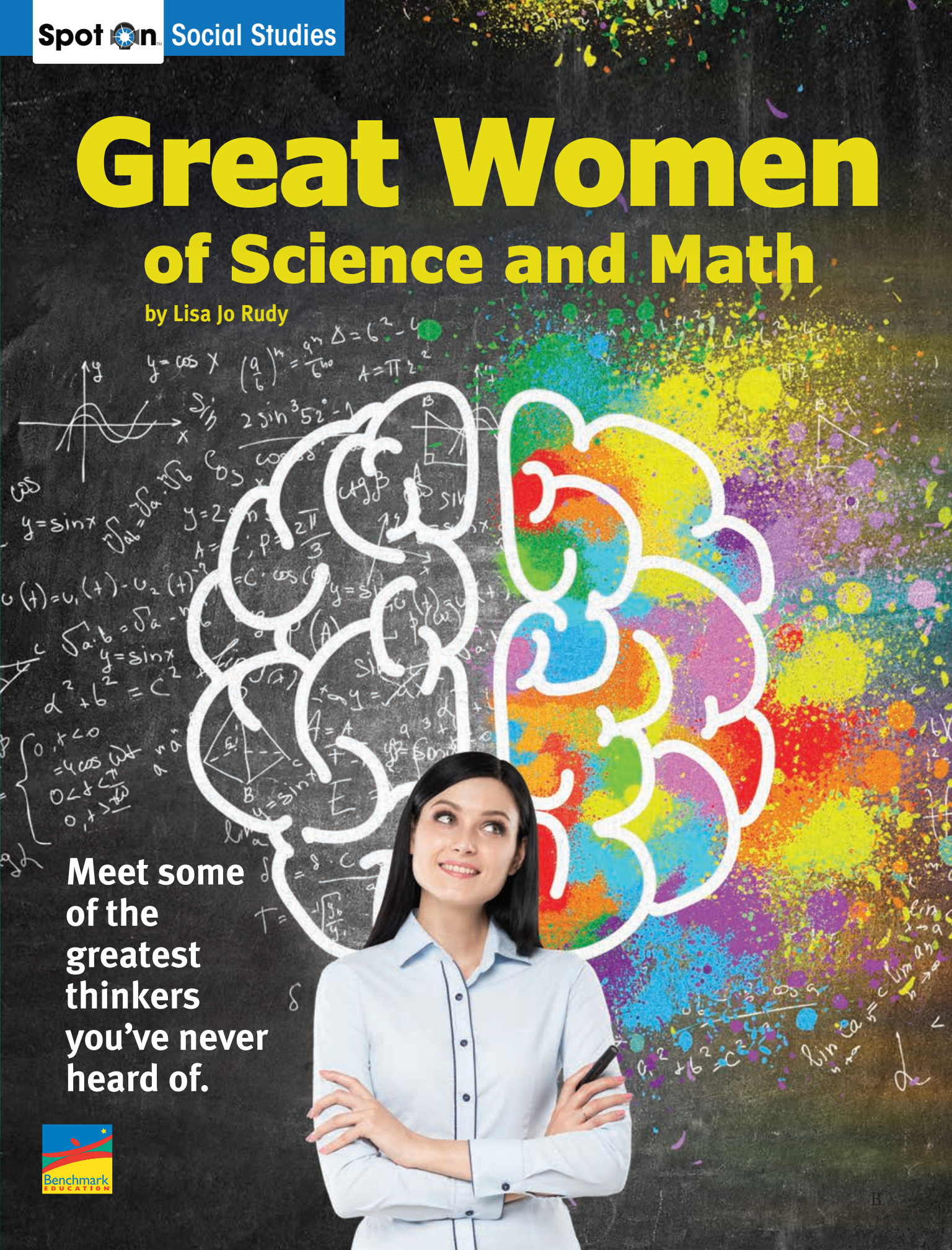
Spot On Social Studies

Great Women of Science and Math

by Lisa Jo Rudy



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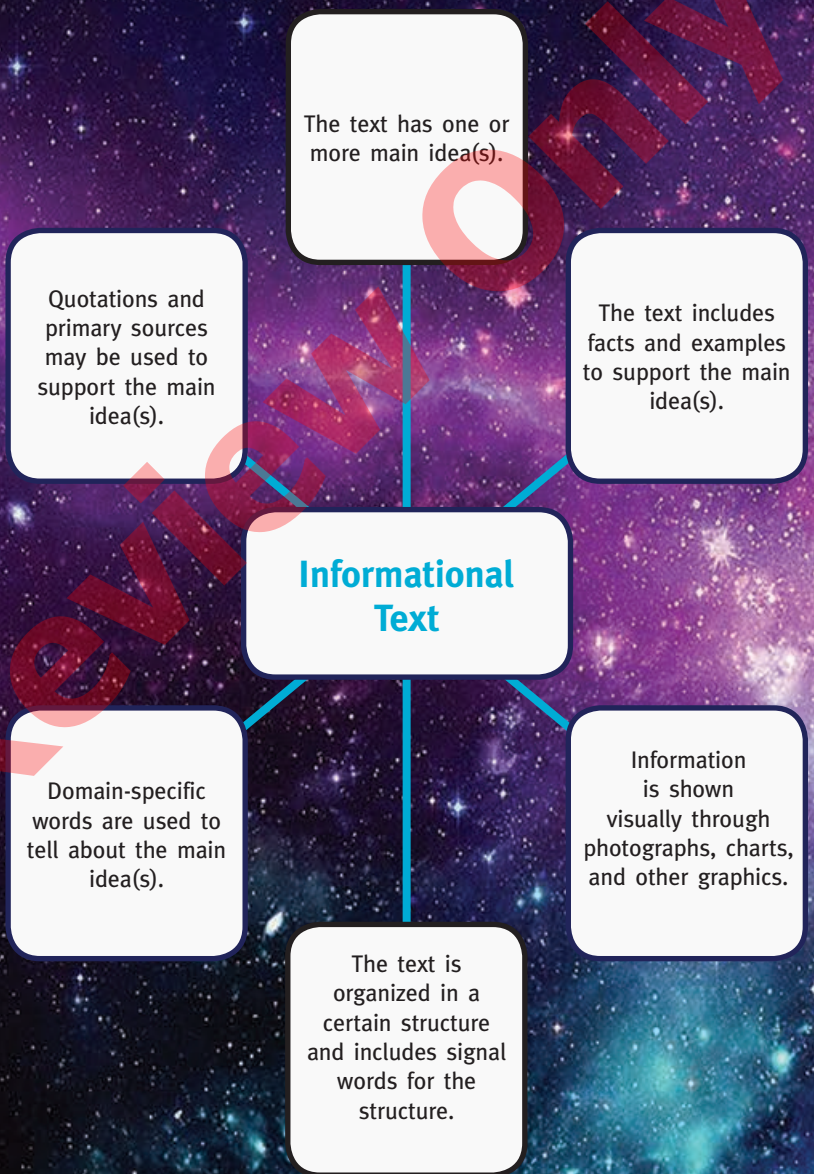

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The Challenges Faced by Women in Science and Math

The natural world has always made people very curious. Ancient people studied the stars. Inventors created new machines. Today, people called **scientists**, **engineers**, and **mathematicians** still do these things.

However, it hasn't always been easy for women in the fields of science. Often, women have faced great **prejudices**. In the past, girls had to fight to be allowed to study science and math in school.

355

Hypatia was born in 355 CE in ancient Egypt. She was the first woman mathematician historians have written records about. She studied the stars and the planets.

1815

Ada Lovelace was born in London, England, in 1815. Her ideas in math helped make the invention of the computer possible. Some call her the first computer programmer.

1863

Josephine Peary was born in 1863 in Washington, D.C. She made an expedition to ice-covered northern Greenland in 1891.

People incorrectly thought these subjects were only for boys. In addition, some women who became scientists and engineers did not get credit for their work.

Today, women win many math and science awards. Now many girls will become tomorrow's inventors and explorers.

Here are a few women throughout history who have changed the world of math and science.

▲ More work is still being done to create equal opportunities for young women and girls interested in science and math.

1867

Marie Curie was born in Poland in 1867. She was the first woman to win a Nobel Prize. This is one of the highest honors in the world. She won two of these awards during her career.

1907

Native American **Bertha Parker Pallan** was born in New York in 1907. She dug for fossils and discovered the bones of ancient extinct animals. She also discovered ancient human settlements.

1907

Miriam Daniel Mann was born in Covington, Georgia, in 1907. She was hired by the U.S. space program. Her calculations helped send the first rockets into space.

Three Branches of Science

Science is a process. The process starts when scientists observe the world. Then they ask questions and perform **experiments** to find out the answers.

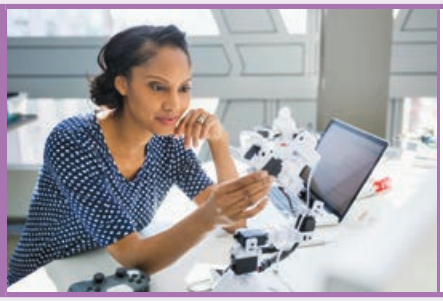
There are three main branches of science. The three branches are life science, earth science, and physical science.

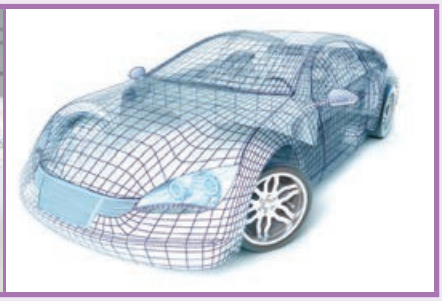
Branches of Science

Life science
is the study of living things.

Earth science
is the study of the nonliving parts of planets.

Physical science
is the study of energy, matter, and motion.





Scientists in each branch use mathematics. They also follow the same general process of observing, asking questions, and experimenting. Sometimes, the branches of science overlap. For example, a life scientist may rely on information from the earth sciences.

Life Science

Life science is the study of living things. Life scientists observe how plants and animals live and grow.

There are many types of life scientists. Marine biologists study ocean life. Medical doctors work to heal illnesses within the human body. Some conduct research to save human lives. Veterinarians help animals that are hurt or sick.

Life scientists often use math in their pursuit to better understand living things. For example, they may use math to measure the growth of certain animals over a period of time. They might also present their findings in graphs and charts.

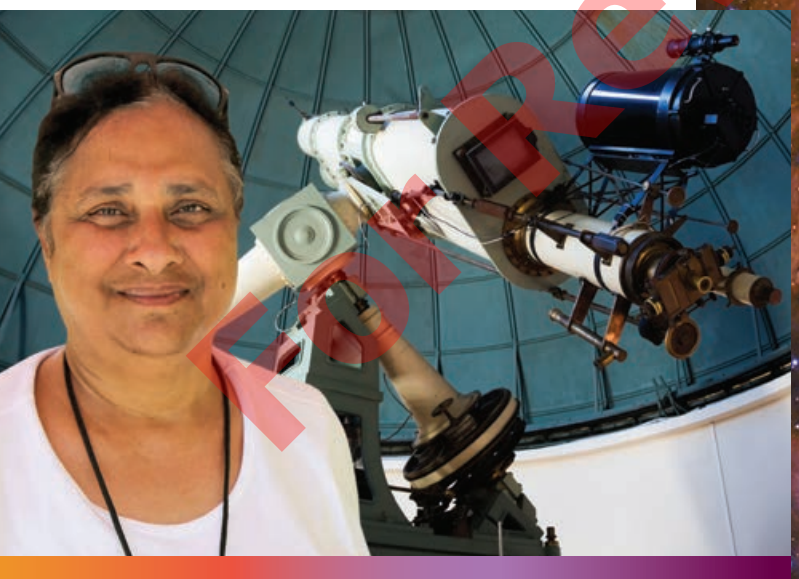
Jane Goodall is a life scientist. She studied chimpanzees for years.

Earth Science

Earth science is the study of the nonliving parts of planets. Rocks, minerals, fresh water, salt water, and landforms are just a few examples of things studied by these scientists.

There are many different types of earth scientists. Geologists study different rocks and minerals, and how Earth changes as a result of earthquakes and volcanoes. Paleontologists study fossils of organisms from earlier eras. They use their **data** to develop ideas about how these organisms once lived and what conditions were like on Earth thousands of years ago. Even scientists who study other planets are called earth scientists. That's because they focus on the nonliving parts of those planets.

Earth scientists also use math. For example, they might calculate the wind speed, analyze the density of lava, or measure snowfall.



▲ **Padma Yanamandra-Fisher is an earth scientist. She uses the Galileo telescope to study unexplored areas of space.**

Physical Science

Physical science is the study of energy, matter, and motion. Physical scientists study how objects move and how they are made.

There are many types of physical scientists. A chemist studies solids, liquids, and gases. Mechanical engineers develop safer cars, taller buildings, and more.

Physical scientists also use math. For example, they might program computers to complete multiple calculations.

▲ Marilyn Jorgenson Reece was a physical scientist. She worked as an engineer to design safer roads.

CHAPTER 2

Women in the Life Sciences

Throughout history, women have worked in the life sciences. In the past, fewer women became scientists than they do today. Or if they were scientists, their work was not always acknowledged. But now, most universities and organizations strive to treat women equally.

This chapter provides examples of women scientists who have achieved major accomplishments in the life sciences.

Life Science: Fields of Study

There are many fascinating fields of study within the life sciences. Here are a few:

Taxonomy:
the study of grouping animals

Bioengineering:
the study of biology through technology and engineering

Botany:
the study of plants

Marine biology:
the study of ocean life

Genetics:
the study of how traits are passed from parents to offspring

Entomology:
the study of insects