

# Sul Ross Lesson Plan Model

Lesson Title: Third Graders Learn about Scientists and Inventors

Subject/Grade Level: Social Studies/3rd Grade

Created By: Abigail Vizcaino

## Texas Essential Knowledge and Skills (TEKS)

### §113.14 Social Studies Grade 4

(16) Science, technology, and society. The student understands how individuals have created or invented new technology and affected life in various communities, past and present. The student is expected to: (A) identify scientists and inventors, including Jonas Salk, Maria Mitchell, and others who have discovered scientific breakthroughs or created or invented new technology such as Cyrus McCormick, Bill Gates, and Louis Pasteur

## Materials Needed

- Link to research site: <https://www.kidzsearch.com/>
- Readings and slides in this lesson
- Markers, colored pencils, glue, scissors, glitter
- Poster board, paper
- Costume supplies such as trash bags, scientific props

## Lesson Procedures

- Ask the children if they know of Jonas Salk, Bill Gates or Maria Mitchell.
- Read the short descriptions about each one and look at the slides.
- After reading, ask questions such as
  - Which inventor or scientist did you like best? Why?
  - What do you know now about Jonas Salk?
  - What do you know now about Bill Gates?
  - What do you know now about Maria Mitchell?
  - If you were an inventor or scientist, what would you study?
- Give children time to make a poster about their favorite inventor or scientist. They can use the research site to find out more about the person.
- Checklist for poster
  - Name of famous scientist or inventor
  - Important dates for the scientist or inventor
  - One or more contributions the person has made to society
  - Any interesting fact

## *Extension*

- Using the costume supplies, children can make lab coats to dress as their favorite scientist or inventor. For Lab Coats, with trash bags cut half a circle at both ends to make armholes. Cut a triangle at the center for your head. Cut a straight line down all along the front side. Draw a little pocket and buttons down the middle.
- Make a book about your favorite inventor or scientist and draw illustrations.

## *Selected Readings*

### Louis Pasteur

Each time you wash your hands to kill germs, think of Dr. Louis Pasteur. Dr. Pasteur was a food chemist who became famous for making communities safer when he found the cause and prevention of diseases. He was the scientist who discovered that germs cause disease. Later he discovered that heat would kill dangerous germs or bacteria in liquids. If left alone, bacteria could spoil the liquids; but if heated, the germs in the liquid would die. In 1864, Pasteur invented a process to heat liquids such as milk and orange juice to a temperature hot enough to kill germs, but not so hot as to damage the quality of the liquid. The liquid could then be refrigerated to keep longer without the bacteria growing in it. This innovative process is named after Dr. Pasteur and is called pasteurization. Pasteurization makes our milk and orange juice safer to drink. Look for the word on the label on foods such as milk, eggs, fruit juices, honey, and syrup. Another invention of Dr. Louis Pasteur was the vaccine to counter the effects of rabies, a very dangerous disease. Pets are vaccinated against rabies regularly, but humans are only vaccinated if they are bitten by an animal that carries rabies. Dr. Pasteur made discoveries that helped all communities, doctors, scientists, and health workers understand how diseases come from germs. Dr. Pasteur made the handling of food, and storage of food safer and this innovation made communities healthier and safer.

### Bill Gates

Do you have a computer in your home, or in your school? Today a computer is small and portable, but when they were first invented even though they were fantastic, they were as big as a room. Early computers were slow and very difficult to operate, as well. A computer was very innovative, brand new idea. Bill Gates helped to improve the computer by creating an operating system to make the computer smaller, easier to use and faster. He also made the computer much more affordable for everyone to buy, as well. Does that remind you of what Henry Ford did with the automobile? Using a computer combined with the Internet, many people and businesses can get news and messages in less than a second of time. Also, the computer hard drive can store a great deal of information that no longer has to be written on paper. Bill Gates founded the company, Microsoft. Because Mr. Gates revolutionized the computer industry, he has influenced many communities. In fact, today he is one of the most influential people in the world. He encourages people all over the world to use technology to

communicate and cooperate. Bill Gates and his wife Melinda give their time and money to many volunteer causes. They started a non-profit foundation called the Gates Foundation. The Foundation gives money to many needy causes and to research, including research about ways to offer the best education to all people, including putting computers in classrooms. The Gates also give money to the non-profit organization called Imagine No Malaria to help rid Africa of the disease malaria.

### Jonas Salk

Jonas Salk was the oldest child of a family who immigrated to America from Poland. He earned a medical degree from the New York University School of medicine and became a virologist (a scientist who studies viruses) and an immunologist (a medical scientist who studies the body's reaction to diseases.) Years later, he worked with Thomas Francis, Jr. at the University of Michigan. Together the men developed a vaccine to prevent type A and B influenza virus. A vaccine protects the body against infectious disease. When everyone in a community is inoculated against a disease, everyone in the community is protected from that particular infectious disease. In 1952, Dr. Jonas Salk moved to Philadelphia, Pennsylvania to work on other vaccines. There Salk developed the famous vaccine against polio. By 1955, seven million children were vaccinated against polio and the crippling disease of polio had been reduced by 96%. Think of how many children were saved from becoming crippled, paralyzed, or even dying from the disease of polio. Eventually, Dr. Albert Sabine invented a substitute method for the polio shot. Instead of a shot, people can take a live polio virus dripped onto a sugar cube. Many other diseases now have vaccines as well, but Dr. Jonas Salk is credited with defeating polio. Continuing to work in science and discovery all his life, Dr. Salk received the Presidential Medal of Freedom in 1977. The last reported case of polio in the United States was in 1993.

### Maria Mitchell

In 1847, more than 165 years ago, Maria Mitchell was the first woman astronomer to use a telescope to discover a comet. They named the comet she discovered "Miss Mitchell's Comet." She was also the first woman to work as a professional astronomer. Miss Mitchell was a scientist who was first to help people know and understand what was in outer space. Miss Mitchell was also the first woman appointed to the American Academy of Arts and Sciences and the first professor of astronomy on the faculty at Vassar College. Miss Mitchell noticed that her salary was lower than men who did the same job. Knowing it was not fair, or equal, she asked for an equal salary and got it! In World War II a Liberty Ship was named the SS Maria Mitchell. A crater on the moon is named after her, as well. Her most famous quote is: "We have a hunger of the mind. We ask for all of the knowledge around us and the more we get the more we desire." She also said, "Question everything." More quotes from Maria Mitchell: "Do not look at stars as bright spots only. Try to take in the vastness of the universe." "I am just learning to notice the different colors of the stars, and already begin to have a new enjoyment." "Every formula which expresses a law of nature is a hymn of praise to God."

## Cyrus McCormick

In 1834, Cyrus McCormick invented a large horse-drawn machine called a mechanical reaper. The reaper was innovative because it helped to harvest large crops faster than harvesting the crops by hand. A farmer can only plant as much wheat or grain as can be harvested quickly, because once grain is ripe, the grain can ruin in the field. The longer the farmer waits to harvest, the bigger the chance the ripe grain could be ruined by rain, wind or storms. The mechanical reaper could cut the grain quickly so that people could bundle and stack the grain in the fields quickly getting it ready to take to market. The innovative Cyrus McCormick moved to the plains states where there were more farmers, and over time, the popularity of the mechanical reaper began to grow. Farmers in all communities could now plant more grain because it could be harvested faster. American farmers began having enough grain to sell across the United States, and even enough to sell internationally to other countries. Of course, some of the grain after harvest was lost on the ground as the bundles were stacked. Also, the grain still needed to be separated from its stems and shafts. McCormick's son became involved in helping to find solutions to those problems when he became involved with the business. Over time, the mechanical reaper was improved and made into combines that can plow the ground, plant the seeds and then harvest the grain. The combine even takes the stems and shells off the grain as it is harvested and then it shoots the grain safely into the back of a large truck. This saves time and money. No more stacking, bundling and wasting of the grain. Eventually, the mechanical reaper company was called International Harvester. Today, the machines are huge and help to make growing large amounts of grain more possible than ever.

## Historical Scientists & Inventors



By: Abigail Vizcaino

## Important Vocabulary

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- Scientist-a person who studies, specializes in, or investigates a field of **science** and does scientific work
- Inventor-a person who has invented something, or whose job is to invent (create or make) things.
- Contribution- if you contribute to something, you say or do things to help make it successful
- Vaccine- can help our bodies learn how to fight an infection or disease
- Pasteurization- is the process where harmful bacteria are killed in foods and liquids.
- Revolutionized- to change greatly or completely

## Louis Pasteur

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Dr. Pasteur was a food chemist who became famous for making communities safer when he found the cause and prevention of diseases

In 1864 he invented a process called pasteurization.

Pasteurization makes our milk and orange juice safer to drink. Look for the word on the label on foods such as milk, eggs, fruit juices, honey, and syrup.

He also invented the vaccine to fight off rabies.

## Jonas Salk

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Dr. Salk contributed with the vaccine to fight the Flu Virus.

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## Maria Mitchell

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- In 1847, Maria Mitchell was the first woman astronomer to use a telescope to discover a comet. "Miss Mitchell's Comet."
- Miss Mitchell was also the first woman appointed to the American Academy of Arts and Sciences and the first professor of astronomy on the faculty at Vassar College

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- Early computers were slow and very difficult to operate.
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