

# Calling All Inventors



by Leigh B. Estabrooks

From Benjamin Franklin's experiments with electricity (BELOW) to landing a man on the moon (RIGHT) to today, U.S. history and invention have been intertwined.

This is an open letter to all *COBBLESTONE* readers. I am calling upon you to invent. Are you wondering why I'm asking you to invent in a magazine devoted to U.S. history? Think about it. The United States has contributed an amazing number of scientific discoveries and technological inventions to the world. It happened over time. At first, the nation built

on ideas from Europe. In the 19th century, Americans began to think independently about science and engineering. By the 20th century, the United States was an international leader in those fields. From Benjamin Franklin's research with electricity in the 1750s to the moon landing in 1969 and smartphones in the 21st century, U.S. invention and history have been connected.



Two successful federal programs paved the way for educating the nation's history-making scientists, engineers, and inventors. Both programs emphasized the importance of providing more Americans with access to an education.

The first program came about through the Morrill Act of 1862. It also is known as the Land-Grant Act. The federal government donated federal land to the states. The states sold the land in parcels to raise money. Each state used the money it raised to establish a public college or university. The schools offered programs to meet demand for practical higher education that had not been previously available to agriculture and industrial workers.

The second federal program was the Servicemen's Readjustment Act of 1944. It also is known as the G.I. Bill of Rights. Soldiers returning from World War II (1939–1945) used the act to help them transition back to civilian life. They used it to finish high school, to continue their higher education, or to start a business. That original bill ended in 1956. Its successes, however, encouraged lawmakers to provide present-day veterans with benefits, too. The 2017 Forever G.I. Bill makes it possible for today's veterans to further their education, too.

In the 21st century, pursuit of an education—particularly in the fields of science, technology, engineering, and mathematics—are more important than ever. Those four subjects often are grouped together as STEM. Strong STEM classes can help focus students' natural inventive thinking. Creative thinking can help

## Creative Kids and the Curb-Climbing Wheelchair

This is a real story of a team of high school inventors. One team member observed that his town didn't have curb cuts to allow smooth access between streets and sidewalks. That bothered him because his sister uses a wheelchair for **mobility**. Without curb cuts, she had difficulty getting around. The historic part of town was especially difficult for her.

The invention team decided to build an attachment for wheelchairs. The work was difficult and challenging, but the students had two teachers who helped them. First, the team members researched how wheelchairs operated. They built a small model of their idea. Then they constructed a full-scale **prototype**. The wheelchair has attachments on both sides. Each attachment includes a ramp that extends from a telescoping arm. This useful and unique attachment received a U.S. patent in 2010.

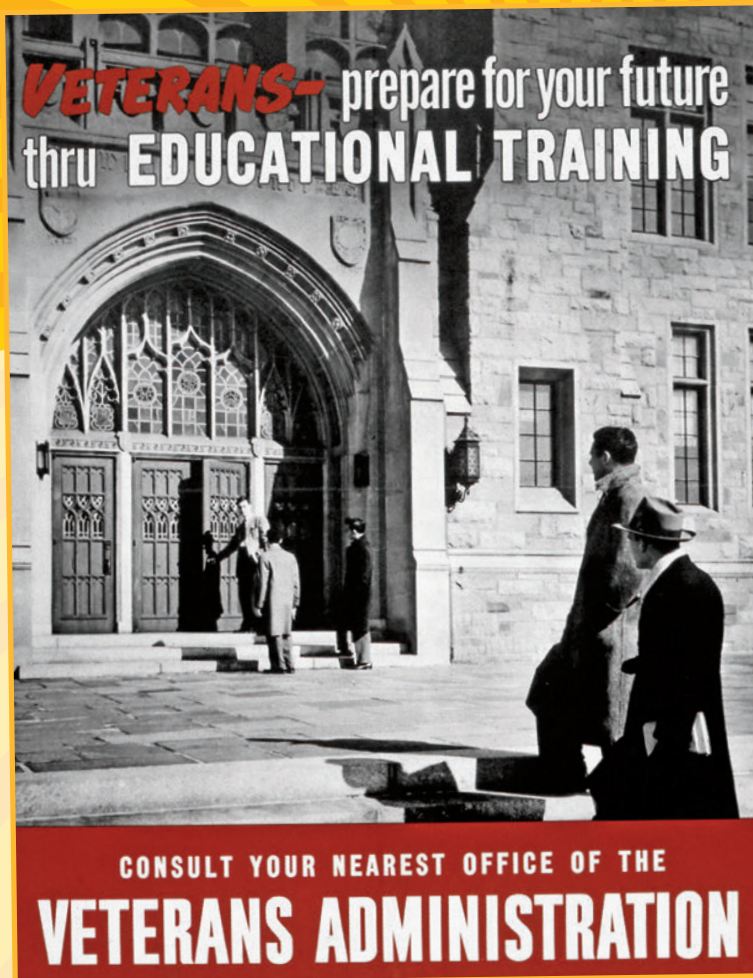
**Mobility** means the ability to move from place to place.

A **prototype** is an original type or form of something that serves as a model for later stages.



All nine students and their two teachers are listed as inventors on the patent. To learn more about the wheelchair attachment, do a search on the Internet for U.S. patent number 7,850,189.





solve some of the biggest problems facing the world today. Problems such as globalization and access to health care. Population growth and food shortages. Poverty and disease. The idea of tackling such big problems through inventing may seem overwhelming. But problem-solving by inventing can become a part of everyday life. And it can help make the world a better place. Here's how you can get started:

Always be on the lookout for problems to solve. You probably will not know how to solve the problem right away. That's fine. Just start by identifying a problem. Inventors often are *stymied* because they don't have a good problem to solve. Use a notebook or a pad of paper to keep a list of things that bug you or that

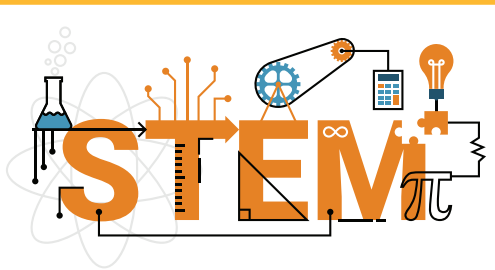
The G.I. Bill made it easier for World War II veterans to further their education.

*Stymied* means stumped or faced with an obstacle.

*Serendipitous* describes making a fortunate discovery by accident.

Scientists and inventors are behind the biggest ideas to cure disease and improve health care.





**STEM subjects can help you  
tap into your inner inventor!**

don't work well. Try to make writing down problems a habit.

Be prepared and be patient. You may fill several notebooks before you hit on something to invent. Sometimes inventions are *serendipitous*. Inventors will admit that “aha! moments” do happen from time to time. Those moments make inventing seem quick and easy. But most inventors prepare for such moments over time. They gather skills, experiences, and knowledge. Skills and experiences are often developed outside of school. The foundation for knowledge is learned in school.

Inventions have changed the course of history. What unique and useful thing will you invent to solve real-world problems? Maybe the two stories included with this article will serve as inspiration. Happy inventing! 💡

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## A Creative Kid and a Simple Solution

When Kavita Shukla was in middle school, she visited her grandmother in India. While there, she drank tap water. Her grandmother made Kavita drink a tea with different spices including *fenugreek*, to prevent her from becoming sick from water-borne diseases. Upon returning home, Kavita experimented in her garage with samples of the spices and dirty pond water. A few weeks later, the pond water looked clean. Kavita noticed fuzz-covered strawberries in her refrigerator. Her “aha! moment” came when she wondered what would happen if she dipped the strawberries in the natural spice mixture. She tried it. Her spice mixture proved to be antifungal and antibacterial. In other words, it destroyed the growth of things that cause food to rot.

*Fenugreek* is a cloverlike Eurasian plant with white flowers and seeds.

Kavita experimented with a lot of different mixtures. Then she put her invention on paper. She called it FreshPaper. Her simple yet important invention is useful and unique. It helps preserve food. She was awarded U.S. patent number 6,372,220 titled “fenugreek impregnated material for the preservation of perishable substances” in 2002. She went to college and co-founded a successful business based on FreshPaper.



In Kavita's case, she used known ideas to create a wholly original invention. The properties of fenugreek have been valued since ancient times. It has been used as a spice for cooking and as medicine. Paper, too, has a long history. But 12-year-old Kavita put the two together. Today, her invention helps to feed the world. It is distributed to farmers and families in more than 35 countries.