



Alexander Graham Bell

Scottish-born inventor Alexander Graham Bell is best known for constructing the first telephone. Many inventors had been working on the idea of sending human speech by wire, but Bell was the first to succeed. In 1875, along with his assistant, Thomas A. Watson, Bell made instruments that sent recognizable voice-like sounds. Bell's first telephone patent was granted on March 7, 1876.



Telephones communicate our voices, but does something get lost in the translation? Play a game of "telephone" with a group of friends to find out. Whisper a sentence to the person next to you, and have them pass it on. When it gets back to you, say it aloud, then tell everyone what you first said. You'll be surprised at what you hear.



Lazlo and George Biro

In 1935, Hungarian Lazlo Biro was editor of a small newspaper, where he was frustrated by the amount of time he wasted filling fountain pens and cleaning up ink smudges. Lazlo and his brother George (a chemist) developed the ballpoint pen, with a well of ink inside the pen, distributed evenly by a rolling ball. Write on!



Have you ever tried to write with something other than a pen or pencil? It's not as easy as it might seem. Hundreds of years ago, most people wrote with a quill, or the shaft of a feather. Try writing a message using a feather quill dipped in ink (you'll need to cut the end of the quill at an angle). Don't have a feather? Try using a narrow straw, a toothpick, or a thin stick. Imagine trying to do your homework that way!



Stephen Perry

The first rubberband was made in 1845 by Stephen Perry in London, England. Perry invented the rubberband to hold papers or envelopes together, using a vulcanized rubber. Vulcanized rubber, which is strong and resistant to heat and cold, was invented when Charles Goodyear accidentally dropped some rubber mixed with sulfur on a hot stove.



Which kinds of rubberbands shoot the farthest? Have a shooting contest to find out. Create a "shooting range" where there's no danger of hitting anyone. Shoot several kinds of rubberbands and measure the distances they travel. Which ones shoot the best?



Luther Burbank

Luther Burbank developed more than 800 new strains and varieties of plants, including potatoes, plums, prunes, berries, flowers and trees. One of his greatest inventions was the Russet Burbank potato. This blight-resistant vegetable helped Ireland recover from its devastating potato famine (1845 - 1851). Burbank also developed the Elberta peach, the Flaming Gold nectarine, the Santa Rosa plum, and the Shasta daisy.



When we think of inventors, we often forget the plant breeders and botanists who have created many of the foods we enjoy today. What kind of fruit would you invent if you were an "agricultural inventor"? Would it be a cross between existing fruits or something totally new? Draw a picture of your fruit invention and give it a name.





William Seward Burroughs

William Seward Burroughs invented the first practical adding and listing machine. Working in a bank inspired the young man to save accountants and bookkeepers from the monotony of their tasks. His "calculating machine" patent was awarded in 1888.



Try this math trick with your own calculator, or work the math on paper. First pick a number, any number. Multiply it by 2. Add 5. Multiply that by 50. Now, if you've already had your birthday this year and it's the year 2001, add 1751. If you haven't, add 1750. If it's now 2002, add 1752 if you had your birthday already; if you haven't, add 1751. Subtract the 4-digit year in which you were born. The result? The first digit(s) is your original number and the last two digits are your current age!



Walter E. Disney

Walt Disney created more than characters like Donald Duck and Mickey Mouse. Among his many other achievements is the multiplane camera, which created a sense of depth in animation by placing the cells on different planes. It was first used in the full-length animated feature "Snow White and the Seven Dwarfs."



You can create your own animation with a flip book. Staple ten small pieces of paper together along the left side to make a booklet. Plan what you will draw—make it something simple, like a ball bouncing or a rocket launching. Draw the figure in almost the same place on each page of your flip book, moving it slightly each time. When you're done, flip the pages quickly with your thumb to watch your cartoon come to life.



Wilbur and Orville Wright

Wilbur and Orville Wright made the first human-carrying powered flights in history on December 17, 1903. The first flight, with Orville as pilot, covered about 120 feet and lasted 12 seconds. On the fourth and longest flight of the day, Wilbur flew 852 feet in 59 seconds. That's when they knew they were on the Wright track!



Make your own airplane! You can create a basic paper glider following these easy steps: First, fold an 8-1/2" x 11" sheet of paper in half lengthwise. Fold down the front two corners, toward the inside of the plane, making the edges of the paper meet the fold. Fold down the sides again, making the edges of the fold meet each other in the center. Fold the sides in again, then fold the whole thing up the middle, against the original fold. Now you're ready to fly.



George Washington Carver

Although he's well-known for his invention of peanut butter, George Washington Carver was a remarkable man in many respects. Born of slaves at the end of the Civil War, he became a world-renowned agricultural chemist. Carver produced over four hundred different products derived from the peanut, the potato, and the pecan.



Peanut butter is a big part of this bird feeder you can make yourself. Mix chunky peanut butter with cornmeal and shortening or bacon fat. Spread it on a large pinecone, then pour birdseed onto a plate. Dip and roll the pinecone in the seed, let it harden overnight, then tie some string or yarn to the top of the pinecone. Hang the feeder in your yard and watch everyone fly in!





James Naismith

It was the winter of 1891 in Massachusetts, and P.E. instructor James Naismith was looking for a game that his students could play indoors. It was a challenge but Naismith kept trying and eventually invented the rules of basketball. Many years later, in 1936, basketball became an Olympic sport at the games in Berlin, Germany.



To play basketball with just two people, why not play a game of "horse"? Flip a coin to see who goes first. Player #1 chooses a place on the court and tries to make a basket. If player #1 makes the shot, then player #2 gets one try to make the same shot. If player #2 misses the shot, he/she gets an "h," the first letter in the word "horse." Keep repeating this process and adding the next letter of the word whenever a player misses the original shot. The person who spells the entire word "horse" is out until the next round.

Note: If player #1 misses the first shot, it's the next player's turn to choose a spot to shoot from on the court.



Ruth Wakefield

Ruth Wakefield, innkeeper at the Toll House Inn in Whitman, Massachusetts, used broken-up bars of semi-sweet chocolate to make "Toll House cookies." Little did she know that she was inventing the cookie that would become America's favorite. Today, over seven billion chocolate chip cookies are eaten annually. What a sweet idea!



Make yourself some trail mix, a yummy snack with chocolate chips. Mix together one cup each of the following: chocolate chips, unsalted peanuts, raisins and shredded coconut. Divide it up into four zipper bags and enjoy!



Joseph Gayetty

The flat sheets of toilet paper invented by Joseph Gayetty were meant to replace what people commonly used in 1857—pages of mail-order catalogs! It wasn't until ten years later that it was developed into a roll of perforated paper, much like the toilet paper we use today.



Have an adult help you make your own humming flute using an empty toilet paper roll. For this project you'll need magic markers, an empty toilet paper roll, wax paper, scissors, a rubberband and a pencil.

Decorate the toilet paper roll with magic markers. With a pencil, poke 3 or 4 holes in the cardboard roll, about 1 inch apart. Cut out a 4-inch square of wax paper. Secure the wax paper over one end of the roll using the rubberband. Your flute is now ready to play! Hum into the open end and move your fingers on and off the holes to change the sound.



George Eastman

Before George Eastman's inventions, photography was a complicated and expensive process. Eastman, a passionate photographer, wanted to "make the camera as convenient as the pencil." Eastman made many contributions to photography, including the invention of flexible roll film and the simple snapshot camera. Later he named his company Eastman Kodak because he thought "Kodak" would be remembered. He was right!



Have some fun with photography. Using a disposable camera, take photos of your friends, family and pets. When the photos are developed, put your favorite ones on the fridge or have an adult help you organize them in a photo album.





Margaret Knight

While working in a paper bag factory in the late 1800s, Margaret Knight invented a new machine part to make square bottoms for paper bags. Paper bags had all been flat like envelopes until that moment, and not nearly as useful as they are today. Knight earned her first patent with this invention and went on to start the Eastern Paper Bag Company. Her success was in the bag!



Make a paper bag puppet. You'll need a lunch bag, magic markers or crayons, yarn for hair, scissors and glue. Lay the lunch bag flat with the square bottom facing up. The flap will be the mouth. Draw eyes and a nose on the flap, and decorate your puppet however you like. For hair, use glue to attach yarn to the puppet's head.



Thomas Adams

Chew on this: Before Bubble Yum and Juicy Fruit, there was Adams New York Gum, invented by Thomas Adams. It was sold for a penny apiece in 1871, and was marketed with the quirky slogan "Adams New York Gum No. 1—Snapping and Stretching." Years later, Adams's company merged with the six largest chewing gum manufacturers in the U.S. and Canada, and became famous making Chiclets gum.



Hold a bubble-blowing contest. Each person gets one piece of bubble gum, and the person who blows the biggest bubble wins! Just for fun, try to blow a double bubble; that's a big bubble with a smaller one inside.



Igor Sikorsky

You've probably heard about the Wright Brothers, but maybe not Igor Sikorsky—another prominent aircraft inventor. His experimental helicopter made its first flight on September 14, 1939, which helped establish the tradition of using helicopters to save lives in medical emergencies.



Have an adult help you make a magic propeller. You'll need a pencil with an eraser, scissors, thin cardboard, and a straight pin. First draw a propeller shape on the cardboard and cut it out. Stick the pin through the center of the propeller, then into the top of the pencil eraser. Now, take the pencil between your palms and roll it rapidly back and forth. Let it go from your hands with a powerful spin and watch it fly!



Louis Braille

Blind from the age of three, Louis Braille invented a way for blind people to read by creating a system of raised dots for the reader to touch. Although the system was not well accepted in its time, braille is still used today by visually impaired people all over the world.



Explore your sense of touch by having an adult set up a "touch and feel" station. Don't peek while it's being set up. Then put on a blindfold and touch each item. Can you tell what you're touching? Some things you could include in the station are peeled grapes, cooked spaghetti, a pinecone, a spoon, etc.





Hans and Zaccharias Janssen

The earliest microscope was just a tube, with a plate for the object at one end and a lens that gave very little magnification at the other. In about 1590, two Dutch eyeglass makers, Zaccharias Janssen and his son Hans, while experimenting with several lenses in a tube, discovered that nearby objects appeared greatly enlarged. That was the forerunner of both the compound microscope and the telescope.



Science is about looking closely. Some scientists use microscopes to take a closer look. But you can do the same thing with a simple piece of paper. Make a one-inch square window in a piece of paper. Choose something interesting, like a flower or a tree trunk. Put your window over the object and look at it closely. Take your time and explore the detail. Then draw what you see.



Eli Whitney

Eli Whitney was the inventor of the cotton gin and a pioneer in the mass production of cotton. By April 1793, Whitney had designed and built the cotton gin, a machine that automated the separation of seeds from cotton fiber. His machine could produce up to 50 pounds of cleaned cotton daily, making southern cotton a profitable crop for the first time. But Whitney failed to profit from his invention—other people made imitations of his machine, and his 1794 patent was not upheld until 1807.



Time to get touchy-feely! See how long it takes you to find 10 things in your home that have cotton in them. Ready, set, count!



John Baird

John Baird is remembered as being an inventor of mechanical television, radar and fiber optics. He created the first televised pictures of objects in motion (1924), the first televised human face (1925), and the first televised image of a moving object (1926) at the Royal Institute in London. Color television (1928), stereoscopic television, and television by infrared light were all demonstrated by Baird before 1930.



Get ready for your close-up because it's time to become a news reporter. Interview your friends and family about topics of interest, and put on your own newscast. Don't forget to dress the part.



Thomas Edison

By the age of six, Thomas Edison's experiments with fire were said to have cost his father a barn. He averaged one patent application every 11 days between 1869 and 1910. America's most prolific inventor received 1093 patents—more than any other person before or since. Contrary to popular belief, Edison didn't invent the light bulb. He bought the rights to another patent and improved upon the idea. He demonstrated the light bulb in 1879 and continued to improve it until it could last for over 1200 hours. Talk about a bright ideal!



Throughout his career, Edison gave his attention to projects that would make everyday life easier. See what fun you can have by using a flashlight or lamp to create a story using shadow puppets.





Louis Pasteur

When was the last time you got sick from drinking milk? It used to be a big problem before Louis Pasteur discovered a process for purifying milk—since called "pasteurization." Born in France in 1822, Pasteur showed how bacteria can spoil foods and how foods can be kept pure by careful storage and cleanliness. Pasteurization kills the bacteria in milk that were once responsible for transmitting diseases.



Want to watch food grow? Just combine 1 cup wheat flour with 1-1/2 cups warm water to make a sourdough bread starter. Combine in a glass jar, mix well, and leave the top on loosely. Then wait and watch how the mixture changes. It will increase in volume and bubbles will start to form. You can even smell the sourness of the water. Yum. Science in action!



George de Mestral

In the early 1940s, Swiss inventor George de Mestral went on a walk with his dog. He noticed that his dog's coat and his own pants were covered with burrs. He studied the burrs under a microscope, where he discovered their natural hook-like shape. This was to become the basis for a unique, two-sided fastener—one side with stiff "hooks" like the burrs and the other side with the soft "loops" like the fabric of his pants. He named it Velcro.



Here's an activity that you'll become really attached to. Design an object that uses Velcro in a creative way. Imagine—a bike with a Velcro seat so you stay put! Complete the process by drawing pictures of your designs.



Federico Faggin, Marcian Hoff, and Stan Mazor

In November 1971, a company called Intel publicly introduced the world's first single-chip microprocessor—invented by Intel engineers Federico Faggin, Marcian E. (Ted) Hoff and Stan Mazor. The microprocessor was one of the most important discoveries of the last half of the 20th century. It is found in virtually every automobile, medical device, and computer in the modern world.



If you invented a computer, what would you have it do? Write a short story or have a parent help you write it. Would you have it do your homework? Annoy your older brother? Save the universe? You decide!



Leonardo da Vinci

Born in 1452, Leonardo da Vinci was one of the greatest innovators of all time. He was a well-known inventor, scientist, engineer, architect, painter, sculptor, musician, mathematician, anatomist, astronomer, geologist, biologist, and philosopher. Among his numerous designs are flying machines, parachutes, submarines, compasses, contact lenses, underwater breathing devices, swim fins, and canals.



Da Vinci usually used "mirror writing," starting at the right side of the page and moving to the left. Do as da Vinci did and try writing backwards. Hold a pencil in each hand. At the same time write backwards with the usual writing hand while writing forwards with the opposite hand. (Having one hand mirror the other hand's action seems to help the brain coordinate the movements.) A mirror will help you see if you've reversed all the letters properly.



