“Imagination is more important than knowledge. For knowledge is limited to all we now know and understand, while imagination embraces the entire world, and all there ever will be to know and understand.”

- Albert Einstein

Where do we get new ideas? Most people would say that we “think them up.” But how do our brains suddenly have a really new thought? Mostly we learn names and numbers and how to do things. But to have a new idea we have to give our thoughts room to roam.

Look for ideas in different places. Watch how an animal moves when you are trying to think of a new design for a robot. Watch your fingers carefully as you move each one. Remember the expression “thinking outside the box.” If
THINK CONTINUED FROM PAGE 1

You are building a house, does it have to be square? Look closely at different kinds of leaves. Then think about how their designs could be used for a roof.

Think about creating a new game. Take any kind of ball and write down all the different things you could do with it. Think about rolling it, hitting it, floating it in water, balancing it on something. Then instead of playing baseball with a baseball, try doing something different with it. Finally, write down the rules for your new game.

What if you keep having the same old thoughts? Get up and do something completely different. When you come back your mind may have wandered to give you another idea. If you are trying to think of an idea for the future, look at a book about the ancient past.

A group of people can often think up better ideas than one person alone. It is like being with friends and someone thinks of something funny. That makes everyone think of something even funnier. Everyone comes up with different things to laugh about. So think about inventing as a way of having fun. What makes us laugh is often something unexpected: a new idea.

Where do brainstorms come from?

Over a hundred years ago if you had a bright idea, you might have called it a “brain wave.” Now we like to use the term “brainstorm” when we mean our minds are being creative. In the 1950s a business leader wrote about “brainstorming” as a way to help people to come up with something new. The point is to encourage wild ideas and get a group to think out loud together. If you think of a thunder storm with lightning flashing, you see where the name may have come from.

Here are some ways to get new ideas:

- Get paper and pens to write ideas down
- Write down the first words that come into your mind
- Think of the craziest idea you can come up with
- See a picture in your mind instead of trying to use words
- Draw your thoughts or make a cartoon out of them
- Build a model or fold up paper to help your idea take shape

Remember that the word “news” is the first word in “newspapers.” We want to know what just happened and who did what. But the newspapers are also full of new ideas, new problems, new discoveries. Look through your paper for some stories that interest you. Then write down every new idea that you find. See if you can find a story about a new invention. What kinds of new ideas are being tried to fix old problems? What new ideas come into your mind as you read about the news?

S P O T L I G H T

The hidden life saver

What is a life-saving invention that you may never see? If you ride in a car less than 10 years old, it will have an air bag. Even though air bags for cars were invented in 1952, it took nearly 40 years for them to become common. It took the work of inventor Carl C. Clark to prove that air bags would save many lives in car crashes.

He used to speak in schools in Maryland as “Mr. Science.” He would challenge students to figure out how to protect an egg when it was dropped from a height of six feet. Clark was the kind of scientist who liked to do things himself. In one experiment, he built a large box. He lay down in the box sandwiched between two air bags. Then the box was lifted and dropped, then raised up higher and dropped, over and over. He also worked on the idea of using air bags to protect astronauts and airplane passengers. Another idea was inflatable underwear that would save elderly people from broken bones if they fell. One friend said that Clark wanted to put an air bag on anything that moved!

Carl C. Clark’s life-saving invention, the air bag.
Science mirrors fiction with cloak

BY DAVID BARNSTONE
ROCHESTER.EDU

Inspired perhaps by Harry Potter’s invisibility cloak, scientists have recently developed several ways — some simple and some involving new technologies — to hide objects from view. The latest effort, developed at the University of Rochester, not only overcomes some of the limitations of previous devices, but it uses inexpensive, readily available materials in a novel configuration.

“There’ve been many high tech approaches to cloaking and the basic idea behind these is to take light and have it pass around something as if it isn’t there,” said John Howell, a professor of physics at the University of Rochester. Howell and graduate student Joseph Choi developed a combination of four standard lenses that keeps the object hidden as the viewer moves up to several degrees away from the optimal viewing position.

“This is the first device that we know of that can do three-dimensional, continuously multidirectional cloaking, which works for transmitting rays in the visible spectrum,” said Choi, a Ph.D student at Rochester’s Institute of Optics.

Many cloaking designs work fine when you look at an object straight on, but if you move your viewpoint even a little, the object becomes visible, explains Howell. Choi added that previous cloaking devices can also cause the background to shift drastically, making it obvious that the cloaking device is present.

In order to both cloak an object and leave the background undisturbed, the researchers determined the lens type and power needed, as well as the precise distance to separate the four lenses. To test their device, they placed the cloaked object in front of a grid background. As they looked through the lenses and changed their viewing angle by moving from side to side, the grid shifted accordingly as if the cloaking device was not there.

While their device is not quite like Harry Potter’s invisibility cloak, Howell had some thoughts about potential applications, including using cloaking to effectively let a surgeon “look through his hands to what he is actually operating on,” he said. The same principles could be applied to a truck to allow drivers to see through blind spots on their vehicles.

It’s not that we need new ideas, but we need to stop having old ideas.

— Edwin Land, who invented Polaroid instant photography
Connect 1•2•3

Enter the door 1. Get out of the maze through the door 2. Closed doors are locked.

ANSWERS
FROM PAGE 1
1. footsteps
2. a cabbage
3. a deck of cards
4. a sponge
5. a mirror
6. a chair
7. none – a hole is filled with air
8. D. All of the above

TEAPOT ANSWERS:
1-3, 4-10, 5-2, 8-7, 9-6

Check it out
How Bright is Your Brain?
by Michael A. DiSpezio
Sterling Pub.
Top science author Michael DiSpezio devises some bright, fun ideas that will show kids exactly how their brain, nerves and senses work. Entertaining, informative and all in color, this varied collection of great brain tricks, experiments, puzzles, quizzes and activities provides a cool road map to exploring the most awesome part of the body. Every point is made in a wonderfully clear and clever way.

– AT THE LIBRARY

Monte and the World of Possibilities
Thousands of grade schoolers in Utah are getting a new book that plants the seed of one day attending college.

Students at Beehive Elementary in Kearns were the first to get the book, “Monte and the World of Possibilities". Lt. Gov. Spencer Cox read it to them, while commissioner Dave Buhler, of Utah’s System of Higher Education, told them it is not too early for them and their families to start making plans.

KSL’s Read Today program partnered with StepUp Utah to distribute the book to nearly 5,000 students in the Read Today tutoring program. Watch the story to see why the goal is to not only help students, but also the state’s economy.

If your family would like a copy of the book, visit readtoday.com.
Know your world

‘G’eo­graphy is about knowing what’s there, why it’s there and why it matters. Know­ing geography will make your life more interesting, more exciting and more fun.”

That’s what the National Geographic Society says about geography. We hope you’ll look around and see why geography matters. Here are some examples:

It’s about people

Geography is the study of humans and how we are alike as well as different. From the Artic to the equator, people live everywhere in every kind of climate.

It’s about how we live

People form countries, fight wars, worship their Creator and try to live
Continents of the world

Have you ever heard the term "continental drift?" The theory states that approximately 300 million years ago the continents were all joined forming one supercontinent known as Pangea. Scientists have found similar plant and animal fossils around the shores of different continents which suggests they once were joined.

Today, there are seven continents. Can you identify each continent from the list at the right and write the name in the white space located next to it on the map above? There are also seven continent facts — one for each continent. Can you figure out which continent each fact belongs to?

- A. It is the largest island.
- B. This continent covers one-third of the earth’s surface.
- C. It is home of one of the largest snakes in the world, the anaconda.
- D. Believed to be the place where humans first lived.
- E. Is the windiest continent on earth.
- F. This is the only continent with every kind of climate.
- G. It is the only continent without a desert.

DID YOU KNOW: THE NAMES OF ALL THE CONTINENTS END WITH THE SAME LETTER WITH WHICH THEY START.

AFRICA

ASIA

ANTARCTICA

AUSTRALIA

EUROPE

NORTH AMERICA

SOUTH AMERICA

newspaper activity

- The Deseret News type at the top of the first section is called the masthead. The first section is the A section. This is where you will find news about the world. Inside the A section at the top of a page you will see type that says World report. Can you find the Datelines column? Listed are brief news items from countries around the world. Do you know which continents those countries are located?
- When you read through your newspaper, think about how geography affects our lives. Look for stories that are about our place in the world:
  - Business around the world
  - Food and products we buy from other countries
  - People coming to the U.S. and Europe to look for work
  - Travel, ships, airplanes and railroads
  - Children and schools in other countries
  - Health and disease
  - Climate and how it is changing our world
  - How other countries see us
Turning geography into electricity

Here’s a question for a geographer: Where can we get new energy without burning fuel? The wind, turning a windmill, is one source. The power of water rushing out of the mountains is another. Since ancient times people have used wind and water mills. A newer way to get energy from water is to use the powerful waves of the oceans.

A geographer will tell you that temperature differences between water and land help create our weather. Winds blowing across the vast oceans make swells, or giant ripples, on the water. If you look at maps you will see how much coastline borders the oceans. Where in the world would you plan to tap the power of those mighty waves?

The challenge is to turn all that power into a form that we can use, like electricity. If you have ever been on a boat when there were any waves, you know you go up and down. One kind of generator uses that bobbing motion to push a pump that creates electricity. Another device funnels the waves into a narrow channel to drive a turbine. Still another way is to let the swells shove huge flaps in and out.

The problem of making power from waves is one that needs solving. Drop a rock into a pool and watch what happens to the ripples. Experiment in the bathtub or a swimming pool sometime. Use your imagination and see if you can invent a new way to make power from water moving.

A Geographic Focus on Conservation

Biodiversity: Our planet has an incredible wealth of variety — everything from doves and ducks and dragonflies to ferns and worms and flowering trees. But the biodiversity of many of Earth’s regions is declining.

Fresh water: It is easy to take clean, fresh water for granted. But as demands for it grow, shortages will become more frequent — especially in some areas — unless we take steps to ensure safe, clean water.

Populations: The population of the world now exceeds 6 billion, and this puts a lot of stress on Earth’s resources, many of which, though seemingly endless, are in fact finite.

Oceans: Earth’s oceans provide recreation opportunities, a great deal of food, energy, minerals and a vast highway for trade between the continents. Besides that, points out National Geographic, oceans help maintain our healthful environment by regulating air temperatures and supplying moisture for precipitation. If there were no oceans, life as we know it could not exist.

— Carma Wadley
Villains kidnap Santa in ‘Fairy Tale Christmas’

BY ELLIE DE GROOTE
FOR THE DESERET NEWS

Book by Michael McLean and Scott McLean

Christmas is coming; I can hardly wait! The perfect book to get into the spirit of the holidays is “Fairy Tale Christmas” by Michael McLean and Scott McLean. It is told from the perspective of the villains of famous fairy tales. That makes it funny, and the familiarity makes it very easy to get into the book! It’s officially for the 8- to 12-year-old age group, but the authors and I agree that it’s a story all ages will enjoy.

Interviewing co-author Michael McLean is like watching a play. While answering my questions, he moved around, slammed the table, used hand gestures and facial expressions, played a song for me on his iPhone, raised his voice to a yell and then lowered it back down to a whisper. I was kind of sad about something that happened at school when I went in, but he cheered me up right away and got me laughing. It was so much fun!

Villains strike back

The book starts out with all the villains from fairy tales, such as Rumpelstiltskin and the giant from “Jack and the Beanstalk,” forming a group called the “Clandestines.” They are determined to win in their fairy tales instead of always losing out in the end. For example, if Maleficent wins, Sleeping Beauty stays asleep forever.

It is almost Christmas and the villains have a plan. They invite Santa to Cinderella’s Christmas Eve party where all the good fairy-tale characters will be. At the party, the villains kidnap Santa and won’t let him deliver toys unless the good characters let the villains succeed in their fairy tales.

Will the Clandestines prevail and ruin the endings of our favorite tales? Will Santa be held captive through Christmas Eve, with no child in the world getting presents on Christmas morning? Find out in “Fairy Tale Christmas.”

Father and son authors

Michael McLean and Scott McLean are father and son. Michael McLean lives in Heber and Scott McLean lives in New York City. The son is an actor who performs all over the country. He also writes songs and plays. His father loves fly fishing, tennis and golf. He lives on a farm with acres of alfalfa. He currently is building a barn to hold all of it.

“I love going to the movies with my sons, who are actors,” Michael McLean said. “Then we go out to eat and talk about what the movie meant. We talk about how we would rewrite it and we talk forever.”

The older McLean has produced, directed and written many award-winning films and commercials and created more than 24 albums, and every year, he puts on a holiday production.

“Every year for 23 years now from November to Christmas Eve, I perform ‘The Forgotten Carols’ in front of 40,000 to 50,000 people,” he said. “I’m hoping ‘Fairy Tale Christmas’ will turn out the same.”

The book was first written as a musical play, which he hopes to expand to include 15 songs and perform next year.

Learning to not judge

Michael McLean thinks authors write for themselves. He wrote “Fairy Tale Christmas” because he needed to learn something. The two collaborators used Skype calls to go over the ideas for the book, the play and the songs. Their website, FairyTaleChristmasMusical.com, will be putting up songs from the play soon. I’m excited to listen to all the tunes and someday see the musical.

“Seeing things through the perspective of the villains gave me an opportunity to explore things I haven’t seen in books, particularly books for young readers,” Michael McLean told me. “We know who the heroes are and good always triumphs over evil. The bad guys deserve to lose. What if we really knew the people who we think are the bad guys? What if we really knew their hearts? Maybe we got it wrong. What if the naughty kids just need a break?”

That is why this book is so interesting. One of my favorite parts is when the Clandestines have to eat skunk jerky when things are too nice. This is a very funny story and it made me laugh.

It’s hard to believe that the holidays are almost here. If you want to get ready a little early, read “Fairy Tale Christmas” by Michael and Scott McLean. It’ll put you in the holiday spirit. For now, let me wish you a Happy Thanksgiving and a Merry Christmas.
Music is as much part of the human experience as eating and breathing. It’s a different experience for everyone and has been a part of our history since humans have roamed the earth.

But the true magic in music is its impact on the brain. Learning to sing or to play an instrument can improve reading and language skills, make the learning process easier, and further develop the imagination. But most importantly, music can shape our well-being and provide us with new life experiences.
Your brain on music.

The human brain is divided up into two different regions, which we classify as the left hemisphere and the right hemisphere. Each side of the brain controls different bodily and mental functions. In general, the left side of your brain processes logic and language, while the right side is responsible for creativity and imagination.

But what side is responsible to how we react to music? The answer is both.

Listening, playing, reading or creating music uses nearly every part of your brain, all in very different ways. When you hear music, it triggers the part of your brain responsible for recalling memories. Practicing music can sharpen your coordination and skills involved in singing a song as well.

The imagination allows you to form new ideas and explore creative new worlds of your own. The right side of the brain is often considered the more subjective and creative side of the brain, and is where our imagination resides. Some musical abilities associated with the right side of the brain include:

- Creativity and imagination can go a long way. Next time you listen to your favorite song, remember that you are using your whole brain to enjoy the experience.
- When you hear music, it triggers the part of your brain responsible for recalling memories.
- Different kinds of music can conjure up different emotions, from happy, to sad, and anything in between.
- The brain is able to decode even the most complicated kinds of music, using the same parts of your brain that interpret language — the same parts of your brain that interpret language.
- Music has long been used by doctors and mental conditions. Music has proven to be very effective with people with Parkinson’s disease, reducing symptoms and improving the quality of life.
- Creativity and imagination can go a long way. Next time you listen to your favorite song, remember that you are using your whole brain to enjoy the experience.
- The imagination allows you to form new ideas and explore creative new worlds of your own. A strong imagination can lead to more creative and happy life.

Music is math

Think about the skills involved in singing a song such as “This Old Man.” This simple song incorporates many basic math skills, including matching and comparing, patterning and counting and addition. When you add moving to the beat, you have created an entire mind/body package of learning rolled into one song!

Music and math are highly intertwined. In fact, some of the earliest research into mathematics was an attempt to further understand music. A famous mathematician by the name of Pythagoras discovered that musical notes could be translated into mathematical equations. In doing such, he established the foundation for how we understand music theory today.

Behind the Music

A youthful quartet during a chamber recital. The children take music lessons at the St. Louis School of Music.
The benefits of music education

LAURA LEWIS BROWN
PBS.ORG

Whether you want to be on the main stage or just sing in the shower, there are many benefits to music education. Research shows that learning the do-re-mis can help in ways beyond the basic ABCs.

More Than Just Music

Research has found that learning music facilitates learning other subjects and enhances skills used in other areas.

Making music involves more than the voice or fingers playing an instrument. Learning about music taps into multiple skill sets, often simultaneously.

Language Development

While we adapt to the world ready to decode sounds and words, music education helps enhance those natural abilities. But those abilities also need to be reinforced, practiced, celebrated, which can be done at home or in a more formal music education setting.

The relationship between music and language development is socially advantageous to young children. “The development of language over time tends to enhance parts of the brain that help process music,” says Dr. Kyle Pruett, clinical professor of child psychiatry at Yale School of Medicine and a practicing musician.

The Brain Works Harder

Research indicates the brain of a musician works differently than that of a non-musician. When you’re a musician and you’re playing an instrument, you have to be using more of your brain.

Students in a recent study who received music instruction had improved sound discrimination and fine motor tasks, and brain imaging showed changes to the networks in the brain associated with those abilities, according to the Dana Foundation.

Being Musical

Music does not necessarily make one smarter. But the many benefits to music education include being disciplined, learning a skill, being part of the music world, managing performance, being part of something you can be proud of, and even struggling with a less than perfect teacher.

The primary reasons to consider a musical education is to help become more musical, to appreciate all aspects of music, and to respect the process of learning an instrument or learning to sing, which is valuable on its own merit.

10 THINGS TO DO IN NOVEMBER

1. Be grateful for everything you have
2. Read a good book
3. Take a walk outside in the nice crisp fall air
4. Watch the Macy’s Thanksgiving Parade
5. Shop on Black Friday
6. Bake Cookies
7. Celebrate National Railroad Month
8. Celebrate Peanut Butter Lover’s Month
9. Have a game night with your family
10. Play Football on Thanksgiving – TURKEY BOWL!

SHUTTERSTOCK