volume 3
issue 1

Greek Mythology

The people of ancient Greece shared stories called myths. Myths are stories that people tell to try to explain the world around them. In the ancient world, scientists had not yet discovered why certain things happened. For example, myths explained why there was lightning, how the sun rose and set, and why the ocean had waves.

In Greek myths, gods and goddesses had special powers. Zeus, who was the most powerful of the gods, threw lightning bolts when he was angry. Zeus's daughter Athena was the goddess of wisdom, or knowledge. Zeus's son, Apollo, was the god of the sun. Apollo made the sun rise and set every day by carrying it across the sky. The god Poseidon could make the sea safe or dangerous.

The Greeks prayed to the gods and asked for their help. If sailors were going to sea, they prayed that Poseidon would not send dangerous waves. If there was lightning, people thought they had done something to make Zeus angry.

Greek myths also included stories about heroes. These stories told about people who went on long trips and visited places around the world. They also told about wars and how bravely people fought. Many of these myths were created by people, but some also contain facts. The nations may have gone to war, but the heroes may not have done all of the things the myths described.

At first, Greek myths were not written down. Many people could not read or write, so they told myths and other stories to one another. Sometimes the myths were changed by different speakers. Later, the stories were written down.

Today, books, movies, and television shows refer to Greek gods, goddesses, and heroes. These ancient stories help us understand the history of ancient Greece. They also help us understand the thoughts, beliefs, and culture of the people who lived at that time.

volume 3
issue 2

Putting Two Words Together

A lot of sports that people play use balls. In basketball, players try to get a ball through a hoop. In baseball, players use a bat to hit a ball. In football, players throw a ball to get it close to the goal.

There are other words with "ball" that describe things that are round. But they are not balls with which you play a game. Meatballs are not used in any sport. But they are great with spaghetti.

Eyeballs help in playing sports. But there isn't a sport called eyeball where teams throw and catch eyeballs. You wouldn't want to be in a game that uses fireballs. If you would ever see a fireball, you should get as far away as fast as you can. Then call 911 right away. You should also watch out if a cannonball is going to be fired. It is round but you don't want to play with a cannonball. You especially do not want to catch a cannonball!

There are some words, though, that have ball in them but it has nothing to do with round. Ballpoint pens make writing a lot easier. It's easy to see how the "point" got into ballpoint pen. But why the ball? That part is in the name because of the tip of a pen is round. There are also rooms that are called ballrooms. People hold balls in ballrooms but they aren't the round kind.

Other words with ball have nothing to do with round. In these words, the "ball" part of the word is not even said the same as ball in baseball or meatball. Ballerina is not ball with "erina." Ballerinas are dancers and the word has nothing to do with ball. A ballot is used by people to vote but it is not round. You don't even say "ball" when you say the word ballot.

Whenever you see ball as part of a word, look carefully. Usually, the word has something to do with games and sports. But remember eyeballs, fireballs, and cannonballs. These balls may be round but they aren't used in sports! Ballerina and ballot show that some words with "ball" have nothing to do with being round.

volume 3
issue 3

Bats in Sports

Many sports use bats to hit balls. Bats are used in baseball, cricket, table tennis, and other sports. All of these bats have different shapes. Some are rounded like sticks. Others are flat like paddles.

Baseball bats can be made of wood or metal. The wood that is used for baseball bats is soft and light. However, wooden bats still weigh more than metal bats. That's because wooden bats are solid, not hollow. Metal bats are lighter in weight because they are hollow. The sounds the bats make when they hit a ball are different, too. Wooden bats make a crack sound because they are solid. Metal bats make a ping sound because they are hollow.

Baseball bats have three parts. One end has a wide knob. Without the knob, a batter's hands would slip off the bat. The part above the knob is narrow. It is called the handle because that's where the batter grabs the bat. The other end, which is thick, is used to hit the ball.

Like baseball bats, cricket bats are long and have thin handles. However, cricket bats have wide, flat paddles. Cricket players hit the ball with the paddle part. Cricket bats are made of wood.

In table tennis, bats have short handles and flat, round paddles. Like cricket bats, table-tennis paddles are usually made of wood. The wide part of the paddle has a layer of rubber. When a ball hits the rubber, it spins off of it. Table-tennis paddles are much smaller and lighter than baseball and cricket bats. That's because table tennis is played on a table, and the ball doesn't have to go as far.

Bats in different sports may look different, but they all have the same job. They help players hit a ball farther than they could throw it.

volume 3
issue 4

Moles

Did you ever walk across a lawn and find a mound in the dirt? It may have been made by a mole. Moles have rounded bodies and thick, soft fur that's usually black or gray. They are about six inches long and weigh about six ounces. Their eyes are tiny because they live underground, where they don't need to see well. Instead, moles have strong senses of hearing, smell, and touch. They use these senses to find food and stay safe.

Moles use their short powerful legs, broad front feet, and sharp claws to burrow through the ground. Their long, pointed nose is hard, and it extends far beyond their mouth. Moles use their nose to loosen the earth. Then they use their claws to scratch and their feet to shovel the earth out to the sides of their body. Moles are sometimes said to be the best diggers in the animal world.

Moles burrow along at speeds as fast as four miles per hour. In addition, moles can move both backwards and forwards in their tunnels. This helps them escape from danger.

Moles build tunnels near the surface and deep underground. They build warm dry nests in their tunnels to sleep and to raise their babies. They also build areas to store food.

Moles like to eat earthworms and grubs, and they find these animals as they burrow along. People sometimes think of moles as pests because they can destroy a lawn. However, moles help gardeners, too, by eating insects that harm plants.

When moles enter or leave their tunnel, they pile up dirt into mounds called mole hills. These mounds contain dirt the mole has dug out of the ground. So, the next time you see a mound in a lawn, look carefully. If you wait patiently, you might see a mole peeking out.

volume 3
issue 5

Midnight Sun and Northern Lights

It's midnight, but the sun is shining brightly. Where are you? You're in the Arctic, near the North Pole. During the arctic summer, the sun doesn't set for months. Instead, it goes around the horizon. You could read outside at midnight.

The temperature stays warm, too, although not as warm as where you live. The average temperature in the summer near the North Pole is about 32 degrees, or freezing. That may sound cold to you, but it's warm in the Arctic. The ice on the Arctic Ocean even melts a little.

Winter is very different. The land of the midnight sun becomes the land of the midday night. The sun doesn't rise for months. The average temperature is well below zero.

People may find the polar nights long and cold, but polar bears love it. That's because their fur is hollow, so it traps their body's warmth. In addition, their skin is black, which absorbs the sun's warmth. In fact, polar bears feel hot if the temperature rises above freezing.

The polar nights are long and dark, but sometimes there's a light show in the sky. The northern lights, which are called the aurora, are often green or pink. They seem to wave and dance in the sky. Auroras are caused by gas particles that were thrown off by the sun. These particles collide in Earth's atmosphere and make a beautiful show.

Few people live in the Arctic because it's so cold, but Canada, Greenland, Norway, Iceland, and Russia are good places to see the midnight sun and the aurora. In fact, Norway is often called the Land of the Midnight Sun.

As you travel south from the North Pole, there is less midnight sun and fewer northern lights. It gets warmer, too. Soon, the sun sets at a time you're used to. Also, you can wake up all year with the sun shining brightly.

volume 3
issue 6

Young Inventors: Chester Greenwood

Ear protectors are designed to keep people's ears safe. For example, workers who use loud machines often wear special ear protectors to save their hearing.

The original ear protectors, however, were designed to protect people's ears from the cold. In fact, the first pair was invented more than 150 years ago by Chester Greenwood, a fifteen-year-old boy from Maine.

It's very cold in Maine during the winter. Chester wanted to ice skate, but his ears hurt too much. First, Chester wrapped a wool scarf around his head, but that didn't work. The wool made his ears itch.

Next, Chester formed two loops of wire to fit around his ears. Then he asked his grandmother to sew cloth and fur over the loops. These ear warmers solved his problem.

Soon, Chester's friends and neighbors wanted a pair of ear warmers like his. His grandmother and mother began to sew ear warmers for their friends and neighbors. Then Chester changed the design. He added a flat piece of steel that went over the top of the head to hold the ear warmers in place. Soon, Greenwood's Ear Protectors were selling in several nearby states.

In 1877, Chester patented his design. Later, during World War I, he supplied ear warmers to US soldiers. At that time, soldiers were spending long hours outdoors, where it was very wet and cold. Chester's invention helped them protect their ears.

Although he is best known for inventing ear warmers, Chester also patented many other inventions. These include a wide-bottom tea pot, a rake with steel teeth, and a machine that drills holes in wood.

In 1997, the state of Maine named December 21, the first day of winter, as Chester Greenwood Day. Each year on that day, people in his home town hold a parade and a coolest-ears contest to honor Chester Greenwood, their young inventor.

volume 3
issue 7

Red Alert! The British Are Coming!

As the British army marches over the hill, their guns are held high. The soldiers' bright red coats make the army look like a huge red wall. Sometimes it's enough to scare their enemies into running away!

The British army did not always wear red coats. At first, the soldiers did not have uniforms, so it was hard to tell friends from enemies. Soon after the British government formed a national army it made a new law. Soldiers in new British army had to wear uniform and their uniforms had to be red.

Why did the British government choose the color red? Its purpose was to give soldiers a uniform that was clearly recognizable. At that time, soldiers used muskets, which produced black smoke. The muskets' black smoke soon made it hard for soldiers to see one another. The bright red coats kept British soldiers from being shot accidentally.

The nickname "Redcoats" was first used during the American war for independence. Many Americans did not have uniforms, so the British soldiers with their red coats were easily recognizable.

The life of a Redcoat was hard. Being in battle far from home was dangerous enough, but the Redcoats also received very little pay. In addition, they had to buy their own food and uniforms.

After rifles were invented, soldiers' guns no longer made smoke. Soldiers could easily see one another in battle. The way armies fought also changed. At first, armies lined up in fields and charged each other. Later, soldiers began hiding and surprising their enemy. Soon, it became clear that uniforms should help soldiers blend into their surroundings.

Soldiers in the British army then began wearing tan uniforms. These uniforms made them less visible from a distance. Today, British soldiers wear red coats only in ceremonies.

volume 3
issue 8

On Guard! Junior Lifeguards

Lifeguarding looks like a great job. Lifeguards sit on the beach all day and swim whenever they want. But think about what lifeguards do. The name of the job says it: They guard lives. They make sure you stay safe when you're swimming or playing in the water. Lifeguarding is a serious job.

Most lifeguards are at least 16 years old. However, junior lifeguard programs are for children as young as nine years old. These programs teach children about water safety. In many places, the programs are offered in local swimming pools. In towns on lakes or oceans, however, junior guard programs teach children how to stay safe in large bodies of water.

Guarding in the ocean requires special skills. That's because swimming in the ocean is more dangerous than swimming in pools. The ocean is huge, and it has strong currents. That means you need more skills to stay safe. For example, the touch of seaweed on a swimmer's body can feel unpleasant. However, seaweed can be dangerous, too. Swimmers can get tangled in seaweed and not know how to get free. Knowing what to do in this situation is a very important skill.

Junior guards learn about other potential dangers, too, including how to recognize and get out of rip currents. Rip currents are ocean currents that can make it hard for swimmers to get to the beach. There are also lessons on life-saving techniques, such as first aid and CPR. Junior guard programs teach swimmers how protect themselves and others.

The junior guard program is not only about saving lives, though. Some junior guard programs include lessons on kayaking, sailing, surfing, and other ocean sports. Some junior guards enjoy the program so much that they return every summer. Then when they are adults, some get a lifeguarding job. They love being on the beach. They also love guarding people from danger.

volume 3
issue 9

The Colors of English

There's a fruit that you eat in sections or squeeze to drink its juice. What is it? It's an orange. The name of the fruit is also the name of the color you use to paint carrots or flowers.

Many words have come into English from other languages. The word *orange* came into English from Arabic. Arabic farmers cultivated the orange, known there as the *naranjl*. Later, the word came into Spanish as *la naranja*. Finally, it came into English as the *orange*. At that time, *orange* only referred to the fruit. Later, *orange* was also used for the color.

Some words keep their meaning when they come into another language. Others change their meaning. Many languages have words that came from Indo-European, which was an early language. The word *blue* is from an Indo-European word that meant "yellow." Later, the word came into Greek, where it meant "white." Then it came into Old English, where it meant "pale." *Blue* started referring to the color we know today when the word came into French. Today, you would probably choose blue to paint the sky or blueberries, not the Sun or snow.

The word for the color green was originally from German. The German word was *gruen*, meaning "to grow." That's how we got the name for the color of plants. Today, *green* also describes actions that help our planet.

Red, which came from Greek, also kept the same meaning when it moved into English. You can see the word *red* in color words that are shades of red, including *ruby* and *rust*. You might use the color red to paint apples or cherries.

Words often change their spelling and meaning when they come into another language. You can be a word detective and find clues to a word's history. Many dictionaries have notes about how a word came into English. These notes can amaze you—and your friends.

volume 3
issue 10

Beavers and the Environment

Suppose your front teeth kept growing. By the time you became a teenager, they might be longer than your chin!

Beavers' teeth keep growing, but they don't have to worry. That's because beavers wear their teeth down when they chew on trees. In fact, that's how beavers cut down trees—with their teeth!

Beavers use the trees they cut down to build dams in streams. The dams stop the water from flowing and form a pool. It may seem that beavers destroy the environment, but that's not so. Instead, beavers help many forest plants and animals by giving them homes.

The pool that forms behind a dam makes a great home for beavers. It also makes a great home for fish. That's because the water in the pools moves slowly. Baby salmon living in slow-moving water do not have to fight water currents. Instead, they can use their energy to grow bigger and stronger. Slow-moving water also allows more plants to grow in or around the water. These plants serve as protection and food for baby salmon.

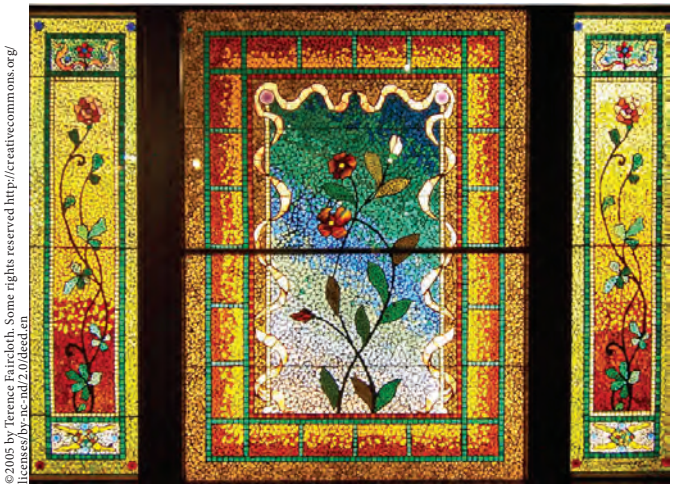
Slow-moving rivers or pools also filter the river. In a slow-moving river, debris, such as dead animals or plants, sinks and decomposes. Debris also gets caught in the plants growing in and around the water. So, by the time the river reaches the ocean or lake, debris has been filtered from the water.

Beaver dams also protect riverbanks from erosion. Fast-moving water tears soil away and washes it downstream. Slow-moving rivers don't erode as much soil from riverbanks.

Beaver dams can cause trouble, though. Dams can create floods that harm trees, homes, and farms. However, scientists often work with people and either change or remove dams that cause too much harm. Learning to live with beavers may require some work, but when people and animals work together, both can have a place to live and grow.

volume 3
issue 11

Stained Glass: Painting With Sunlight



Sunlight streams through colored glass and makes patterns on the walls and the floor. Reds, blues, and yellows seem to paint with the sun's light. This beautiful art form is called stained glass.

Stained glass is an old form of art. Writers described colored glass that was made as early as the year 300! No one has found glass that old, though.

Some time later, writers described stained glass that was used to tell stories in churches. Most people couldn't read at that time, so the stories helped them learn about their religion.

The earliest stained glass window found dates to the 1100s. It was found in Lorsch, a town in present-day Germany. In fact, many artists made stained glass in France and Germany at this time.

One of the main ingredients in glass is sand. The sand is heated to such a high temperature that it becomes liquid. To make glass colorful, minerals, oxides, and other ingredients are added to the sand. For example, copper salts make glass red.

Early artists created drawings that showed the color and the shape of each piece. Then the colored glass was made and cut into pieces. It takes a lot of skill to cut glass. Cutters used very sharp tools, being careful the glass didn't break. Finally, they placed the glass shapes into a frame. Sometimes artists also painted on the glass.

Stained glass is still made today, although new tools and technology have changed the process. It can be made more safely and easily now than it was in the 1100s. Today, in fact, many people make stained glass art to use in their homes. They make objects that can hang in their windows or place on tables. Like the people many years ago, they love the way they can use the sun's light to paint their walls and floors.

volume 3
issue 12

Stringing Along

"Stop fiddling around!" Maybe you've heard adults say that. However, what they should say is, "Start fiddling around!"

The fiddle is a string instrument. Its formal name is the violin, and it makes beautiful music. How does it do that?

Violins don't look like they should be called string instruments. After all, they're made of wood. However, the strings are where the music begins.

Violin strings are made of nylon, steel, or sometimes gut (the intestines of some animals). The violinist uses a bow made of the hair from horses' tails, drawing it slowly across the strings. The wood picks up the strings' sound and transmits it inside the instrument. It then amplifies the sound, producing clear, strong notes. The violinist changes notes by moving his or her fingers across the strings on the violin's neck.

All four string instruments have curvy wooden bodies and straight necks. Violins are the smallest members of the string family. They make the highest-pitched sounds because of their small body. Violas are a little larger than violins, so they produce a slightly deeper sound. Musicians hold both instruments the same way—under their chin.

The other two string instruments are the cello and the double bass. Because they are much larger than the violin and the viola, they are played differently. The bottom of the instrument rests on the ground. The cello is played from a seated position, while the double bass is played from a standing position. The average double bass is about six feet tall. In contrast, a full-sized violin is about two feet long. Because they are so big, basses make the lowest, richest sounds.

Today, string instruments are used in many types of music. Violins are popular in folk, and double basses are popular in jazz. All four instruments are also used in rock music. With such a variety of sounds and sizes, maybe it's time for you to start fiddling around!

volume 3
issue 13

Write a Letter to Congress

What do you care deeply about? Some people care that others have enough warm clothing. To help, they collect coats and donate them to those in need. Some care about pollution. To help, they pick up trash on the side of the road. These people go to neighbors for donations or pick up trash bags to solve a problem.

There are other ways to help, too. One way is to talk about things you care about. You can learn about problems, then talk about them with friends and family. People will listen if you have researched your issue.

Another way to tell others about your concerns is to write a letter to someone in government. How would you choose someone to write to? Find out who is responsible for that area. For example, if you think your town should recycle more plastic, ask your parents, a teacher, or a librarian who is responsible for recycling in your town. Another way to find the information is to go online to your town's Web site.

You might also care about problems that are happening across the country. In this case, you'd write to congress. The United States Congress makes laws for the whole country. The people who are elected to Congress are called representatives or senators. Their job is to represent the people who elect them. If people in congress know what you think, they can pass laws to help you.

When you write a letter, be polite. Open your letter in a formal way, such as: Dear Senator (last name) or Dear Representative (last name). Then clearly state what your issue is and why you care about it. Sign your letter and include your address so the person can answer your letter.

Voicing your opinions is an important way to make a difference in the world. You can help others learn, and you can also help solve our country's problems.

volume 3
issue 14

Staying Safe in Sports

Sports are fun, but they can also be dangerous. Many sports require that players wear protective gear, such as helmets, guards, and padding. Football, hockey, baseball, soccer, and auto racing all require players to use protective gear.

In football, players wear helmets and padding. The first football helmets were made of leather and had no padding. They looked more like hats than helmets. In the 1950s, helmets began to be made of plastic. Shoulder pads became common, too.

Hockey players also wear protective gear. Like football helmets, hockey helmets are made of plastic and have padding that protects players' heads. Goalies wear helmets with cages that protect their face. All hockey players wear shin guards and elbow pads. These, too, are made of plastic, and they protect players' arms and legs.

In baseball, catchers wear helmets that look like goalies' helmets. That's because catchers stand behind batters, and pitchers can throw baseballs at 90 miles per hour. In addition, batters sometimes let their bat go, and that, too, can hit a catcher. Catchers also wear shin guards to protect their legs and padding to protect their chest. Batters sometimes wear guards to protect their arms, too.

Soccer players have worn shin guards since the 1800s. Not only do shin guards protect players' legs, but players can also hit the ball with their guards. In addition, players wear shoes with cleats, which keep them from sliding on grass.

What kind of protective gear do you think a racing-car driver would wear? Cars can go as fast as 200 miles per hour. To protect themselves if their car crashes or if their engine catches fire, drivers wear helmets and suits that protect them from fire. The suits keep them safe while they get out of the car.

Whatever sport you enjoy, it makes sense to wear protective gear. That way, you stay safe, and you can keep on playing.

volume 3
issue 15

Kites: Dancers in the Wind

You're on a beach, and the wind is blowing off the ocean. Your kite floats and swirls, dancing in the wind.

Kites were invented in China more than 2,000 years ago. They were first used by the Chinese military, but about 1,000 years ago, people started flying kites for fun. Since then, kites have been used for celebrations, in competitions, and for science. In addition, kite festivals show off the many shapes and colors of kites. These festivals are held in Japan, Pakistan, and many other countries.

The first kites were made of silk. After paper was invented, around the year 100 AD, people used it to make kites. Today, most kites are made of paper or cloth, with sticks to hold them in shape and string to hold onto them. However, there are also kites for skiing or for moving a buggy on a beach.

In ancient times, kites carried lines across rivers. These lines helped build bridges. In the 1880s, kites were first used to take photographs. In the early 1900s, the United States Weather Bureau used kites to help with weather prediction. The kites measured winds and temperatures.

The word kite is from an Old English word that means "a kind of hawk." Kites were probably given this name because of the way they look when they fly.

To fly a kite, find a large open area, such as a park or a beach. Make sure there are no trees or power lines the kite can get caught on. Then hold the kite's string up and run. The kite will lift when it catches the wind. Guide your kite by pulling the string. Make sure you look around when you're running so you don't run into anything.

As you watch the kite, notice how it moves. If the wind is just right, your kite will dance, too, swirling as the wind takes it high up into the sky.

volume 3
issue 16

Grip and Glide With Friction

What happens when you roll a ball on a basketball court? What happens when you roll a ball on grass? The ball rolls faster on the basketball court. That's because the ball meets more friction on the grass.

Friction is caused when two objects move against each other. If their surfaces have bumps, the objects slow down. The texture of the objects, or the quality of the surface, keeps objects from gliding over each other. Rough textures have more bumps, so they create more friction. Smooth textures have fewer bumps, so they create less friction. That's why there's more friction on grass than on a basketball court.

Sometimes, friction is helpful. If you're going too fast on your bike, you put on the brakes. The brakes rub against the wheels and create friction. This stops your bike. Friction is also helpful when you run. The bumps on your sneakers help your feet grip the sidewalk.

Friction can cause problems, too. When you ride your bike on sand, the sand's rough edges create friction that slows you down. Friction also causes problems when you skate because rough surfaces keep you from gliding. You might even fall because your body keeps going after your feet stop.

Air and water cause friction, too. If you throw a ball into the wind, the wind slows the ball down. Also, when you swim, the water pushes against you and slows you down.

Sometimes, you can control friction. You can reduce friction when you swim by wearing a slippery bathing suit. You can reduce friction in some machines by using oil. You can increase friction with pressure. When you're washing a dish that has food stuck onto it, press harder with the sponge. The friction might remove the food.

To test friction, wash and dry your hands. Then rub them together. Now, wet your hands and rub them together again. What's the difference? Friction!

volume 3
issue 17

From Grease to Gold

Cassandra Lin saw a problem. Some people who lived in her state, Rhode Island, couldn't afford to buy fuel to heat their home. To find a solution, Cassandra went to the Rhode Island Green Expo. That's where she found a way to solve two problems.

Rhode Island winters can be very cold, and not everyone can buy enough fuel to stay warm. Shelters for people without homes also struggle to heat their buildings. Then Cassandra and her friends learned that restaurants poured used cooking oil down their sinks. This oil clogs city sewer pipes.

These two problems seemed separate until Cassandra learned that used cooking oil could be recycled and turned into a clean burning energy that can heat homes. Once they saw what could be done, Cassandra and her friends formed the T.G.I.F project. Now, T.G.I.F doesn't just mean "thank goodness it's Friday" in Rhode Island. It also means "Turn Grease into Fuel."

So far, the program has helped hundreds of people stay warm in winter. In fact, since 2009, T.G.I.F. has given 21,000 gallons of fuel to organizations and people in need in Rhode Island. The estimated cost of this fuel is $81,000.

Where does T.G.I.F get its oil? Many restaurants in the area help by giving their used oil to the project. Restaurants can produce between 100 and 300 gallons of used oil a month, and they usually pay companies to take it away. Families and households are also encouraged to take their used oil to the town's transfer station. The oil is collected there and taken to a place that recycles it into fuel.

Although Cassandra and her friends are young heroes, she credits her brother for his help. Both have a strong interest in helping their community, and the energy to get things done. She says that families should encourage their children so every child can "be as much as they can be."

volume 3
issue 18

Origami: Get Into the Fold

Have you ever made a cootie catcher? Cootie catchers are used in many ways: as toys, for learning, and as art. They are an example of origami, the art of paper folding. In fact, the word *origami* comes from the Japanese words *ori*, meaning "folding," and *kami* meaning "paper."

Origami was invented thousands of years ago in Asia. Because paper can be destroyed easily, historians do not know when people first began folding paper to create art. Many believe that origami could have been invented in China soon after paper was invented. That was in 105 AD. Wherever it was invented, origami became very important in Japanese culture. Today, it is popular around the world.

For hundreds of years, origami designs were taught by one generation to another. Because they were not written down, it is not possible to know who created the patterns. They simply became part of the culture.

The art of origami involves folding paper in complicated ways. There is no cutting or pasting. The crane is a well-known example of origami. It is often used as a symbol of peace.

Modern origami is different from origami made in the ancient tradition. Today's designers use new methods and patterns, and they want others to know that they created the design. These artists create instructions that allow others to copy their designs exactly.

Both the ancient and the modern traditions of origami are great for exercising the brain. By combining creativity and math, and such skills as concentration and problem solving, origami keeps the brain active.

Many origami designs are both fun and useful. Origami boats can float on water. Cootie catchers, also called fortune tellers, can be used in games. Cups can be made for drinking. Party decorations can also be made from origami.

Whatever shapes origami takes, people enjoy creating new patterns and uses for this ancient art form.

Name _____

Greek Mythology

Before scientists could explain why things happened in the natural world, the ancient Greeks believed that their gods had special powers. Write what you would tell a friend or family member about the special powers of the Greek gods. Here are some words you might use.

Greek myths	god	goddess	powers	Zeus
lightning bolts	Athena	knowledge	Apollo	sun
Poseidon	sea	dangerous	safe	angry

Name _____

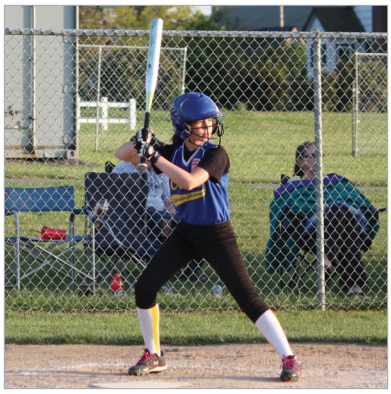
Putting Two Words Together

The words containing the word *ball* described in this article are just a few of the "ball" words you might know. Here are some more words that contain *ball.* Pick five of these words and write how their meanings relate to the word *ball.*

kickball	knuckleball	beachball	sourball	gumball
paintball	dodgeball	curveball	spitball	snowball
balloon	ballgame	ballpark	basketball	softball

Name _____

Bats in Sports



This article described how bats are used in sports, including cricket, baseball, and table tennis, which is also called ping pong. Another common meaning for the word *bat* is an animal that has wings and flies.

Here are some words that contain the word *bat.* Think about the meanings of these words and decide if you think they are related to sports or the animal. If you don't think they are related to either meaning, write them in the "Not Related to Sports or Animals" column in the chart below. When you finish, check your guesses in a dictionary.

	Sports-Related	Animal-Related	Not Related to Sports or Animals
acrobat			
batboy			
batfish			
batgirl			
bath			
Batman			
baton			
batter			
battle			
battlefield			
battleship			
batty			
batwing			
combat			
wombat			

Name _____

Moles

You are now a mole expert! Write some facts about these little underground animals that you would like to share with a friend or family member. Here are some words you might use.

mound	dirt	fur	6 inches	6 ounces
nests	underground	burrow	feet	claws
shovel	forwards	backwards	tunnels	earthworms

Name _____

Midnight Sun and Northern Lights

Write all these words in the right places to complete this puzzle, which tells some things you learned about the Arctic and the North Pole. You can reread the article before you begin, but don't look back at it while you are working. After you've completed the puzzle, read it to someone.

black	midnight	people	polar bears	skin
summer	warm	winter	zero	32

In the _____ season in the Arctic, the sun does not set. It is light outside even at _____. Summer temperatures get up to _____ degrees. This would be very cold in the rest of the world, but in the Arctic, people think it's quite _____!

In contrast, the sun does not shine in the Arctic during the _____ months. The temperature stays below _____ degrees. Most people don't like these freezing temperatures, but _____ love them. Polar bears' fur is white, but the _____ underneath their fur is _____. Their black skin absorbs the sun's light and keeps polar bears warm. The extreme cold is one reason few _____ live in the Arctic.

Name _____

Young Inventors: Chester Greenwood

Write all these words in the right places to complete this puzzle, which tells some things you learned about Chester Greenwood. You can reread the article before you begin, but don't look back at it while you are working. After you've completed the puzzle, read it to someone.

cold	ear	fur	hurt	itch
invented	loud	Maine	scarf	150

Do you wear _____ protectors? Ear protectors can protect your ears from _____ noises. The first ear protectors, though, were designed to help protect people's ears from the _____.

Chester Greenwood lived in the state of _____, where winters are very cold. Chester liked to ice skate, but the cold made his ears _____. First, he tried to keep his ears warm by wrapping a _____ around his head. That didn't work because the wool in the scarf made his ears _____.

Next, he took two loops of wire and asked his grandmother to sew cloth and _____ over the loops. In this way, he _____ the first ear warmers. The ear warmers we use today are based on the ones Chester invented more than _____ years ago!

Name _____

Red Alert! The British are Coming

Write all these words in the right places to complete this puzzle, which tells some things you learned about the British army and their uniforms. You can reread the article before you begin, but don't look back at it while you are working. After you've completed the puzzle, read it to someone.

British	coats	guns	independence	red
shot	smoke	soldiers	surroundings	uniforms

Many years ago, America was ruled by Great Britain. Then America fought a war with Great Britain to gain its _____. Because it was a new army, many American _____ did not have uniforms. The British soldiers, however, wore _____ that were bright _____.

In those days, soldiers used _____ called muskets, which made black _____ when they were fired. This smoke made it hard for the soldiers to see one another. Their bright red coats, though, helped keep the British soldiers from being _____ accidentally.

When rifles were invented, guns no longer made black smoke, so red coats made the _____ soldiers easier for the enemy to see. Today, the British army wears tan _____. Their tan color helps the British soldiers blend into their _____.

Name _____

On Guard! Junior Lifeguards

Imagine that you have the chance to be a junior lifeguard. Write a letter to your mom or dad that will persuade them to let you join the program. Tell them all the valuable things you would learn. Here are some words you might use to persuade them.

water	safety	swimming	rip currents	ocean
pool	lake	seaweed	life-saving	first aid
CPR	kayaking	sailing	surfing	lifeguard job

Name _____

The Colors of English

Most people have a favorite color. What is your favorite color? Write about that color. Which shade of that color do you like best? Is the color related to a sports team you like? What clothes do you wear that are your favorite color? Do you eat any foods that are that color? Share your favorite color with a friends or family members and ask them what their favorite colors are and why they like that color.

Name _____

Beavers and the Environment

Write all these words in the right places to complete this puzzle, which tells some things you learned about beavers and dams. You can reread the article before you begin, but don't look back at it while you are working. After you've completed the puzzle, read it to someone.

behind	dams	growing	live	removed
riverbanks	slowly	teeth	trees	trouble

Most people know that beavers use _____ to build _____. But were you surprised to learn that beavers actually cut down trees with their _____, and that these teeth keep _____ as long as they live?

Pools of water form _____ the dams the beavers build. Baby salmon and other fish can live and grow in these pools because the water in there moves _____. The slow-moving water also protects _____ from erosion.

Beaver dams can be helpful to the environment and to animals, but they can also cause _____ when the water behind a dam creates floods. In cases like these, the dams can be_____. Then both animals and people can be safe and have places to _____ and grow.

Name _____

Stained Glass: Painting with Sunlight

Write all these words in the right places to complete this puzzle, which tells some things you learned about stained glass. You can reread the article before you begin, but don't look back at it while you are working. After you've completed the puzzle, read it to someone.

church	colors	cut	light	objects
sand	shape	stories	temperature	together

Stained glass is an art form that uses the sun's _____ to make pictures. Stained glass can often be seen in the windows of _____, where people go to pray. Sometimes, the pictures in these windows tell _____ about that church's religion.

The glass in stained glass is made from _____. The sand, which is heated to a very high _____, turns into a liquid. Minerals, oxides, and other ingredients are then added to the liquid to create many different _____.

To make stained glass, artists first draw a picture to show the _____ and color of each piece. Next, they _____ the glass into different shapes. Finally, they put these pieces into a frame that holds them _____. Today, stained glass can be made more easily and safely, so many people have stained glass _____ in their homes.

Name _____

Stringing Along

Do you have a favorite instrument? Do you play an instrument? If you could play any instrument, what would it be? Write about the instrument you play or would like to play. Tell why you think this is the best instrument.

Name _____

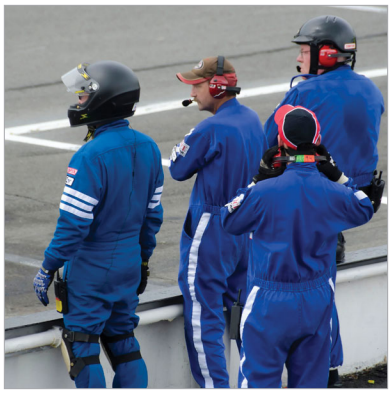
Write a Letter to Congress

What problems are you most concerned about? Are there things at your school that you don't think are fair or that need to be changed? Are there problems in your neighborhood? Perhaps you are concerned about something that is happening in your state or in the country.

Write a letter to a person who can change or fix the problem. It could be the principal of your school, the mayor of your city or town, the governor of your state, the United States president, or your senator or representative. Explain what you are concerned about and why it is a serious problem. Include any ideas you have for how the problem could be solved. Ask the person to write back to you. Who knows? You might get a letter back and people might start working to solve the problem!

Name _____

Staying Safe in Sports



Do you play or watch a sport? Pick a sport that interests you, then write how the players stay safe in that sport. What kind of protective gear do they wear? What are the rules that help them stay safe? You can pick one of the sports described in this article or another one that you enjoy.

Name _____

Kites: Dancers in the Wind

Write all these words in the right places to complete this puzzle, which tells some things you learned about kites. You can reread the article before you begin, but don't look back at it while you are working. After you've completed the puzzle, read it to someone.

cloth	invented	kite	lift	run
silk	sticks	string	trees	windy

_____ were invented in China more than 2,000 years ago. The first kites were made of _____, a light, soft fabric. After paper was _____, people used it to make their kites.

Today, most kites are made of paper or _____. _____ are used to hold their shape, and _____ help people hold onto them.

It is best to fly a kite in a large, open area. Stay away from _____ and power lines, which a kite can get caught on. Hold the kite's string and _____ fast. The kite will _____ up when it catches the wind. A _____ day is a great day to fly a kite!

Name _____

Grip and Glide with Friction

Write all these words in the right places to complete this puzzle, which tells some things you learned about friction. You can reread the article before you begin, but don't look back at it while you are working. After you've completed the puzzle, read it to someone.

brakes	cause	faster	friction	less
move	slow	stop	swimming	wind

Friction is caused when two objects _____ against one another. If you roll a ball on a basketball court, for example, it rolls _____ than it would if you rolled it on grass. That's because the grass has a rough texture that creates _____ with the ball. The basketball court is smooth, so it creates _____ friction.

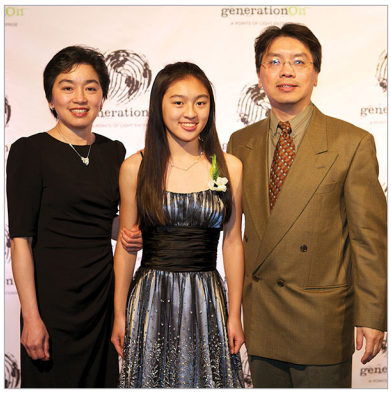
Friction helps you to _____ your bike. When you put on the _____, they rub against the wheel and create friction, which slows your bike down.

Too much friction, though, can _____ problems. If you ride your bike on sand, for example, the sand's rough edges will _____ you down.

Air and water also cause friction. If you throw a ball into the _____, it can slow the ball down by blowing against it. Water can push against you and slow you down when you are _____.

Name _____

From Grease to Gold



Write all these words in the right places to complete this puzzle, which tells some things you learned about how Cassandra Lin and her friends became young heroes. You can reread the article before you begin, but don't look back at it while you are working. After you've completed the puzzle, read it to someone.

clog	cold	fuel	heat	needed
problem	recycled	restaurants	Rhode Island	solve

Cassandra Lin lives in the state of _____. Winters in Rhode Island are very _____. Some people who live there do not have enough money to buy fuel to _____ their homes. When Cassandra learned about this, she looked for a way to solve this _____.

She went to the Rhode Island Green Expo and learned that cooking oil could be _____ into a clean burning fuel. Then Cassandra and her friends asked _____, which use a lot of oil to cook, to give their used oil to a "Turn Grease into Fuel" project. The used oil was then recycled and turned into _____. The fuel was given to people who _____ it to heat their homes.

Recycling cooking oil also helped _____ another problem. Because less oil was being thrown away, there was less oil to _____ up the city sewer pipes.

Name _____

Origami: Get Into the Fold

People in Japan have been folding paper to make objects for thousands of years. Why not try it yourself? Here are the directions for making a sailboat. If you liked creating this boat, have an adult help you look in books or search the Internet for lots more things you can make.

1. Fold a piece of square paper in half to make a triangle. Cut the paper in half along this crease.
2. With one of the triangles, fold it in half to form a smaller triangle.
3. Unfold so that you get the larger triangle again.
4. With the long side of the triangle closest to you, fold the top corner downwards to meet the bottom edge of the triangle.
5. Take the corners on the right and left. Fold them upwards so that the two bottom corners meet together in the middle. You should have a diamond now.
6. Fold the bottom corner of the diamond up to the center.
7. Turn it over. Now you have a sailboat.