**Unit 1 Bicycles over Time**

Today, people ride bicycles everywhere. They sit on their bicycles and push the pedals to make them move. But riding bicycles was not always this way. In fact, the first bicycle had no pedals at all.

In 1817, the first bicycle was invented. It only had a wooden frame and two wheels. So riders had to use their own feet to move it forward.

A half century later, in the 1860s, the bicycle finally got its pedals. They were attached to the front wheel. However, it was very difficult to turn the pedals.

In the 1870s, the “penny-farthing” was invented. It was a steel bicycle with rubber tires and a brake. It looked strange because of its large front wheel and much smaller rear wheel. It could go faster, but its high seat made it dangerous to ride.

In 1885, the “safety bike” was invented. It had two similar-sized wheels, air-filled rubber tires, and a rear-wheel chain. These things made the bicycle safer and more like a modern bicycle.

**Unit 2 Jobs on Bicycles**

People ride bicycles for different reasons. Some people ride them to get around. Others ride them for fun or exercise. In cities, there are also people who ride them for their jobs.

Bike messengers are very common in big cities. They use their bicycles to deliver documents, small packages, and even food. Bicycles are smaller and lighter than cars. So bike messengers can move in and out of traffic more easily.

Some cities have bicycle tours. Tour guides and tourists ride bicycles to look around the city. On bicycle tours, the guides take tourists to popular attractions. They also lead them through local bike paths, narrow trails, and beautiful places that are not well known.

Some police officers patrol the streets on bicycles. Bicycles are not as fast as cars. But it is easier for bicycles to pass through crowded areas. Bicycle officers can move more easily to patrol festivals or parades. So they can reach people in need faster and help them more quickly.

**Unit 3 Jesse Owens**

In 1936, Berlin, Germany, hosted the Summer Olympics. At that time, Adolf Hitler was the leader of Germany. He wanted to use the Olympics to prove Germans were the best at everything. One man, however, stopped Hitler’s plans.

The man was Jesse Owens. Owens was a black man from the US. He grew up poor. He was treated badly because he was black. But he did not let anything stop him. Instead, he worked hard to be a great athlete.

Owens was an amazing athlete. He was a sprinter, hurdler, and long jumper. In 1935, he did something incredible. He tied one world record and set three new ones. He set all those records in only forty-five minutes.

In 1936, Owens went to Berlin to participate in the Olympics. He did not win just one gold medal. He won four of them. He proved he was the world’s greatest athlete.

Owens never became rich after the Olympics. He decided to help poor young people instead. Jesse Owens was truly a hero.

**Unit 4 The Moon Shoe**

How much do most people pay for a pair of shoes? One hundred dollars? How about 437,500 dollars? In 2019, an auction house sold a pair of shoes for that price. That is a lot of money for a pair of shoes. What is more surprising is that a waffle iron was used to make the shoes.

Bill Bowerman was a track and field coach and cofounder of Nike. Bowerman kept on trying to make better running shoes. Once in 1972, he used his wife’s waffle iron. He poured rubber onto it and created soles. The “waffle” soles gave runners a better grip and cushion.

The new shoes left interesting footprints on the ground. They reminded the people at Nike of the Apollo 11 astronauts’ footprints on the Moon. So Nike called them the “Moon Shoe.”

Only twelve pairs of the Moon Shoe were made. But they helped Nike create the Waffle Trainer. Athletes and everyday runners loved to wear them. Soon, the Waffle Trainer became one of Nike’s first big sellers.

Thanks to Bill Bowerman, running became easier. And Nike became more successful.

**Unit 5 Night Animals**

It is nighttime. It is dark outside. A mouse makes a quiet noise out in a field. An owl watches from a tree branch. Suddenly, it swoops down and catches the mouse.

Like humans, some animals sleep at night. But there are a lot more animals that are awake at night. These are nocturnal animals. They are active at night for different reasons. Some prefer the cooler weather. For others, there are fewer predators awake at night. Also, there is less competition for food.

Nocturnal animals have special abilities for night life. Many of them have a good sense of smell. That is not all. Animals such as owls and tarsiers have very large eyes. Their big eyes help them see better in darkness. Large cats such as tigers and leopards have a good sense of hearing. This ability helps them hunt well at night. And bats use sound waves to find prey as they fly around.

At night, it may be quiet. But remember, not everyone is sleeping.

**Unit 6 Unusual Aardvarks**

Draw a pig and give it a long snout. Then, add rabbit ears, bear claws, and a kangaroo tail. Do you know the animal you just drew? It is an aardvark. The aardvark is a nocturnal animal from Africa. It is famous for its unusual looks.

Aardvarks have amazing digging skills. They dig burrows with their strong claws. Their burrows can be 2 to 13 meters long. The burrows have many rooms and entrances. During the day, aardvarks sleep in their burrows. They stay out of the strong sun and keep away from predators in their homes.

After sunset, aardvarks wake up and look for food. Aardvarks like to eat ants and termites. They walk long distances to find anthills or termite mounds. Aardvarks can smell ants and termites very well. When they find anthills or termite mounds, they dig through the dirt. They dig with their powerful claws. Then, they use their long, sticky tongues to eat their favorite food.

**Unit 7 The Sun and the Moon**

A solar eclipse happens when the Moon moves in front of the Sun. The Moon blocks the Sun’s light for a few minutes. In ancient times, people did not understand eclipses. So they created stories to explain them.

The ancient Chinese believed an eclipse happened when a heavenly dragon attacked the Sun. So people would start banging on drums. They made loud noises to chase the dragon away.

The Incas in North America believed an eclipse was a sign. It showed their sun god, Inti, was angry. The king needed to make Inti happy again. So he and his people offered gifts to Inti.

In West Africa, people believed the Sun and the Moon were fighting during an eclipse. They fought because humans would not stop fighting one another. So people stopped fighting to show the Sun and the Moon they were peaceful.

Unlike people in ancient cultures, people today understand eclipses. Astronomers can even predict when they will happen.

**Unit 8 Once in a Blue Moon**

“Once in a blue moon” is an expression people use. It means “very rarely.” Although many people use it, few people know why it means that.

There is a full moon once every 29.5 days. That is how long it takes the Moon to orbit Earth. There are rarely two full moons in the same month. When there are, the second full moon is called a blue moon. But the Moon does not actually look blue.

However, there were times when the Moon looked blue. In 1883, the volcano Krakatoa in Indonesia erupted. It threw tons of dust into the air. As a result, sunsets looked green, and the Moon looked blue. In 1927, the monsoon season in India started late. Because of the dry weather, lots of dust got into the air. Again, the Moon turned blue. And in Canada in 1951, huge forest fires created a lot of smoke. The Moon turned blue then too.

Blue moons are rare, and the Moon rarely looks blue. So people say, “Once in a blue moon,” to mean “very rarely.”

**Unit 9 Bridges and Tunnels**

Today, we see bridges and tunnels everywhere. They let us cross rivers and go through mountains quickly and easily. Bridges and tunnels make our lives easier.

Bridges are very useful. They go over rivers, valleys, and even roads. Cars and trains can cross from one side to another fast. People do not have to ride a boat to get across a river. And children can cross a wide, busy street by walking over a bridge.

People started building bridges a long time ago. They first used logs or stones. The ancient Romans built many stone bridges. Some of them still exist today.

Tunnels do not go over things like bridges. Instead, tunnels go under things. People dig through dirt or rocks to build tunnels. Cars and trains go through mountains easily. People do not have to climb over mountains anymore. Not all tunnels are for people. There are some tunnels for electric cables too.

Today, everything is connected. And bridges and tunnels help make that possible.

**Unit 10 The Last Inca Bridge**

The Incas built the Inca Empire over 600 years ago. It is now Peru in South America. The Incas made many suspension bridges. One of them still exists. It is the Queshuachaca Bridge. But how does it still exist? The people from nearby villages get together every year to rebuild it. It takes four days.

**The Rebuilding of the Queshuachaca Bridge**

On the first day, women weave ropes with dry grass. Then, men braid ropes into six larger, thicker ropes. Four ropes are for the bridge floor, and two are for the handrails.

On the second day, men build the bridge floor. They stretch the ropes from one side to the other side of the river. Then, they tightly tie the ropes to large stones on each side.

On the third day, the bridge fence is built. This is dangerous work. So only brave men can get on the bridge floor. They carefully tie small ropes to make the fence.

On the fourth day, the work is done. People from nearby villages come together to celebrate the new bridge. They celebrate with food and music.

**Unit 11 The Power of Color**

Do you ever think about how colors make you feel? Colors can bring out different emotions in people. They also have different meanings around the world.

Red is one of the most eye-catching colors. Red makes people feel love, excitement, and energy. So Coca-Cola uses red to get people’s attention and make them feel excited. However, red also represents danger. That is why many traffic warning signs are in red. In China, red represents good luck, but it means a time of mourning in South Africa.

Yellow is a powerful color. Most people view it as a happy color. McDonald’s uses bright yellow for their famous arches. They show people that happiness is nearby. However, a dull yellow color is different. It can represent sickness or a warning.

Blue is one of the most popular colors. In Middle Eastern cultures, blue means safety and protection. Western cultures connect blue with peace, calm, and harmony. That is why companies like Pepsi and Samsung use blue.

Look around you. What colors do you see? How do they make you feel?

**Unit 12 Van Gogh’s Colors**

Vincent van Gogh is known for his bright paintings. In *Café Terrace at Night*, yellow glows brighter against dark blue. Blue and yellow are very different colors. And when they are next to each other, they become more vivid.

Van Gogh did not always use colors this way. At first, he used dark colors. There was lots of brown, dark blue, and gray in his paintings. At that time, he focused more on shapes and lines than colors.

Later, Van Gogh wanted to know how different colors would work together. So he studied a lot about colors. He learned various color combinations and their effects. But he still did not know how to use them.

Then, he moved to France. He saw bright, colorful French paintings there. He began to use bright colors in his paintings too.

Van Gogh kept on trying different color combinations. But he did not have enough money to buy many paints. So he used colored yarn to try different color combinations. Now, everyone recognizes his paintings by their bright colors.

**Unit 13 Clean Energy**

The sun shines on your face. The wind blows through your hair. Your feet splash in the water. The sun, wind, and water are everywhere. They are renewable energy sources. They never run out.

**Solar Energy**

“Solar” means “the sun.” So solar energy comes from the sun. The solar panels on the rooftop capture sunlight. Then they change it into electricity for the house.

**Wind Energy**

Wind energy comes from the blow of wind. Look at the wind moving the grass. The wind also spins the giant turbines. Then the turbines change the wind into electricity for the whole town.

**Hydro Energy**

“Hydro” means “water.” So hydro energy comes from moving water. In dams, moving water spins big turbines. The turbines change the force of water into electricity.

But can we always make renewable energy? No, we cannot. The sun sometimes hides behind clouds, and the wind does not always blow. Then there will not be enough renewable energy sources to make electricity.

Renewable energy is not perfect. But it is clean and good for the environment.

**Unit 14 You Can Make Energy**

Most renewable energy comes from the sun, wind, and water. But you can make it too. You can make energy by exercising or recycling food.

**Human Energy**

Time for a bike ride! Riding your bike takes a lot of energy. But did you know some special bikes can collect your energy?

Look at this stationary bike. When you turn the pedals, the back wheel turns. The wheel turns a band connected to a generator. The generator is a special machine. It changes your motion into electric energy. The electricity is stored in a battery. Then you can use it for the lights in your home!

**Food Energy**

Hungry after your ride? It is time for a snack. But do not throw away your leftover food. Keep it and use it to make another kind of energy: biogas.

This machine can make biogas for your home. How? Just throw in your food waste. Bacteria in the machine help the food decompose. As the food decomposes, it creates gas. Then a pipe delivers the gas to your home. It can be used for cooking your next meal!

**Unit 15 Why Do We Need Sleep?**

Sleep is very important. It is how you can rest. Can you imagine yourself not sleeping for three days?

Sleep gives your body a good rest. And it gets you ready for the next day. It also gives your brain time to sort out information. So it helps you learn better and remember more.

Then how much sleep do you need? It is different for different ages. Babies sleep a lot. They sleep about 14 to 15 hours a day. Are you between 5 to 12 years old? Then you need to sleep about 10 to 11 hours. But adults like your parents do not have to sleep as much. They need around eight hours of sleep every day.

Do you want to get a good night’s sleep every day? Then go to sleep and get up at the same time every day. Exercise regularly, but not right before bedtime. And do not look at your smartphone or other electronic screens before you go to sleep!

**Unit 16 Let’s Be Active!**

Are you a couch potato? If so, start moving your body. Sitting around is not good for you.

In the past, children spent more time playing outside. These days, they spend hours sitting in their rooms. They study, surf the internet, and play video games at their desks. In fact, four out of five children do not get enough exercise.

You must move your body. The more you move, the healthier your body will be. Exercise helps you keep a healthy weight. And it will help your heart get stronger.

There are lots of fun ways to move. You can go walking or biking. You can also go inline skating or skateboarding. How about going running with your dog? These activities can make you sweat a bit. Playing tennis or soccer is great too. Playing sports makes you sweat a lot more. Sweating is good. It is a sign that you are getting enough exercise.

Get up and move at least one hour a day. It will make you healthier and stronger.