

Reading Future Change 1

Unit 1. Hyperloop

The high-speed train, which is the type of vacuum tube train led by Tesla CEO Ellen Musk, is called Hyperloop. Hyperloop connects its destination with a vacuum tube at its source, and carries the capsule, a means of transportation, at a speed of 1,280 kilometers per hour. It said that each capsule can carry approximately 28 people, but it can carry a large number of people because it is capable of running more often than expected. It predicted that 15 million passengers will be available annually from 2022.

It is an environmentally friendly transportation means to install solar panels on the roof of a hyper-loop to install a self-power system and to produce energy used in operation from solar power generation. The Hyperloop occupants must withstand gravitational pressures because they run at near the speed of sound. This means that the pressure is as much as the driver in the F1 competition.

Musk said it would take \$ 6 billion and about 6.5 trillion dollars to install the hyper-roofed system. It is cheaper than the U.S.-made railway project, which costs tens of billions of dollars. If the current design goes ahead, the L.A. and San Francisco sections are expected to take about 35 minutes.

Hyperloop is being put to practical use, has already created full-scale test tracks, and is under contract to develop paths. Every one of you conducted the first hyper-loop public test in the desert. However, the company's Hyperloop circle is suffering from internal conflicts that are preventing it from developing technologies.

Korea is also developing its own unique hyper-loop by combining self-injury and vacuum compression technologies. He has succeeded in making the 700 kilometers per hour test, leading the rest of the world in terms of technology. If the Korean Hyperloop is successful at 1,200 kilometers per hour, it will be four times faster than the 300 kilometers per hour KTX, and it can reach Busan from Seoul in just 16 minutes. If hyper-loop commercialization is achieved within the next decade, the world's traffic revolution will take place in South Korea.

Unit 2. The City of Moose

The largest species of deer in North America is called the Moose. In Europe, it is called the Elk. The adult male weighs 726 kilograms and is 198 centimeters tall, making him extremely tall. New-born baby moose is 14 kilograms and grows to more than 136 kilograms in its first five months, and its average lifespan is 16 years.

Moose are mainly found in swamps and woodland in Northern Europe, Alaska, and Canada, and it is also found throughout the year in large cities such as Anchorage and Fairbanks. It is especially common in urban areas during the winter because it is difficult to spend the winter in a forest covered with snow. They move around in the summer in search of food, and reserve energy for the winter.

Even at ski resorts in North America, it is easy to bump into moose and there are quite a few accidents involving deer. Drivers should be cautious when they try to avoid deer, as they may tip over the vehicle and cause serious injuries.

An unexpected number of moose walks through the city of Anchorage, and at the beginning of each year, a map of the entire moose and bears' numbers and habitat is published to alert residents. This is because it is a coexisting area with wild animals. All hunting is prohibited in the city, and only the male may hunt, but only if the horn is of size.

You can see moose eating nuts in the middle of the road, and passing cars find it and slow it down. Alaska is welcoming people from all walks of life.

Unit 3. Ways to Travel

The English Channel is a narrow strait between Britain and France, 563 kilometers long and 240 kilometers wide, and the strait of Dover at the end of the east. The Eurotunnel is an underwater tunnel that was built in 1994 on the Forkstone in England and Calais in France to connect the Dover Strait by land.

Britain's formal name is the Dover Strait, France's the Calais, and the official name is the Channel, which is the Channel Tunnel, or Chunnel.

Eurotunnel is the name of a private company responsible for the construction and maintenance of the tunnel. After the completion, the two governments will hand over ownership of all authority to them in 2042 after having delegated them for 55 years.

The tunnel is 50 km long, has a 30-meter interval, and is drilled from an average depth of 45 meters in the ocean floor. There are two types of shuttles, one dedicated to passenger trains and the other used to carry cargo trucks or cars. The Eurostar, a French special train, runs through the tunnel, making it possible to travel between London and Paris in three hours.

Recently, Britain's Foreign Minister has proposed building a bridge over the English Channel, and French Prime Minister Mark Long has given a positive answer. Dover Strait's shortest distance in the English Channel is 32 kilometers, making it the world's longest bridge when constructed. However, the English Channel, which connects the North Sea and the Atlantic Ocean, has rejected the proposal because it is not practical as it is one of the most frequent shipping routes in the world, and the construction of bridges across the Channel is also uncertain.

Unit 4. Manaus

Manaus is a city in the state of Amazonas, northwest of Brazil. The city is located in the middle of the Amazon rainforest and called 'the lungs of the world.' The growth of the city was largely influenced by the British auto industry in 1890. As the car industry developed, the demand for rubber to enter the wheels increased dramatically. As it happened, Manaus grew rubber trees, which made the city prosperous, and even nicknamed its tropical city Paris. Then, as the seed of rubber trees moves into Southeast Asia, the city begins to decline in the 20th century.

Since then, Manaus has been designated a free trade zone (Zona Franca), making it possible for about 450 foreign companies to enter the market. As a result, Manaus was transformed into the largest industrial area in Brazil. The nation's LG Electronics and Samsung Electronics are housed in the industrial park.

Samsung's plant has some 104 acres of land and 6,000 Brazilian employees and 24 Korean employees. We are making everything from white home appliances, including TVs, to mobile phones except semiconductors. Manaus works in different business units in different production lines.

LG Electronics currently ranks first in the Brazilian TV market with a 30 percent share, and 90 percent of white home appliances such as LG Electronics ' TVs and air conditioners are sold in Brazil's domestic market. LG Electronics also topped the list of Brazilian brands.

If you want to transport products from Manaus to parts of Brazil, you have to use ships or aviation, load the products into containers, and take them along the Amazon River to northeastern Brazil. About 30,000 tons of ships come in and carry goods.

Manaus is the largest city in the Amazon region, and most of the tours to the Amazon River also start there. A few hours in a boat is full of undeveloped natural rain forest. As the sea level is not high, and it is located just below the equator, the average temperature in the evening is very hot at about 40 degrees Celsius.

Unit 5. Control Your Dreams

"Lucid Dream" is a dream that one has when he realizes that he or she is dreaming. In other words, it is a vivid dream. It features being able to create your own world and experience a new world of "dreamland" that is unfolding as you would imagine.

The term was first used by a Dutch psychiatrist in 1913. Stephen LaBerge, a U.S. psychologist, said lucid dreaming gives creative inspiration and a wealth of insight, and helps relieve stress and heal emotional healing.

Recently, applications have been developed to help you experience lucid dreaming. The following is a way to have lucid dreaming.

1. Have enough motivation. Inconsistency is a distraction when there is no incentive.
2. Keep a diary as soon as you wake up from your dream.
3. Check out the best time to have lucid dreaming.

Recently, a band of sleeping assistants has been developed to help people experience lucid dreaming. The band is said to be equipped with a brainwave detection technique called brainwave detection technology to detect brainwaves during sleep so that people can have lucid dreaming.

When a person sleeps, they monitor the brain wave cycle, heart rate, and body temperature, analyze the stage of the dream using the REM sleep, and then activate the sound and LED to help them stay awake. Users can control their dreams like they fly in the air or use psychic powers. It is currently on sale for \$ 189.

Unit 6. The Science of Sleep

Napoleon had an average of three hours of sleep, and Edison, the inventor, slept less. So, how many hours is a proper sleep for humans? I generally know that the ideal sleeping time is eight hours. By the way, a 2002 study showed that a group of seven hours of sleep was the longest. However, since there is a suitable amount of sleep, it is difficult to determine the ideal sleep.

We spend a third of our lives sleeping, but we don't know very well about what happens to our brain during sleep. In particular, there are very few studies of REM sleep where the body sleeps, but the brain is awake.

Sleep is divided into REM (REM : Rapid Eye Movement) and Non-Ram sleep (deep sleep). REM sleep is a near-clear sleep that is separated by rapid exercise in the eyeball. REM sleep and Non-Ram sleep are repeated in sets of 90 minutes on average, consisting of 20 minutes of REM sleep and 70 minutes of Non-Ram sleep. The eyes move slightly during REM sleep, but they are said to sleep deeply with little or no eye movement when taking Non-Ram sleep.

For adults, REM sleep generally occurs about 20 to 25 percent of the total sleep and is about 90 to 120 minutes. Usually, you experience five stages of REM sleep during your nightly sleep. Neural activity in the brain during REM sleep is quite similar to that in the wake.

A team of researchers from the Korea Institute of Science and Technology said, "A lack of REM sleep affects memory advertising. Our country has a small amount of sleep, especially in our childhood and adolescence."

Unit 7. Sleeping Habits

Sleeping is a necessary activity for all living things. During sleep, our brain works to highlight memories when we are awake, make us feel relaxed, and analyze potential risk factors.

They say that if children grow up and enter kindergarten and don't get enough sleep before they become teenagers, they often get upset and stress from the changes in their lives. It examined sleep patterns in children who were about to be admitted to the school, and published a study that suggested that children's sleep patterns should be used to predict their future adaptation to school. Adaptability here is listening to teachers, showing enthusiasm for learning, and how well you can control impulses. That is how much sleep patterns and sufficient sleep time have an important effect on the overall length of school life. On the other hand, some studies show that if a child does not sleep regularly or if the dragonfly continues to change, he or she cannot do even the simplest task.

On 'World Sleep Day', he published seven rules for healthy sleep.

1. Keep regular hours during sleep and wake up.
2. Avoid excessive sleep on the weekend.
3. Enjoy bright lights during the day and avoid light at night.
4. Avoid excessive caffeine intake and drinking.
5. Take a nap during the day if you feel sleepy.
6. Avoid late night exercise.
7. If you're having trouble sleeping, make sure you get professional help.

If you follow the rules of life well, you will stay healthy.

Unit 8. Sweet Dreams

In 2007, brain scientist Björn Rasch published a study that found that the smell associated with previous studies could stimulate the brain during sleep. The participants were asked to remember the location of the object, smell the rose in the process, and sleep in the laboratory after the study was over. They smelled the roses again when they went into deep sleep.

The person who smelled the rose better remembered the location of the object than the one who did not smell the roses during sleep. It only happened to the participants who smelled the roses during the study, and then again during deep sleep. Amazingly, there has been no change in the performance of people who smell roses during the study or in the state of REM sleep only. Through this study, we can relate smell to the learning process and then make the brain strengthen this memory during sleep.

It turns out that not only smells but also sounds enhance memory. The cat is in the lower left corner, and the kettle is placed in the upper right. When I remembered the location of the cat, I could play the sound of cat crying, and when I remembered the location of the kettle, I could hear the boiling sound of water in the kettle. Later, when they fell asleep, the people who heard the cat cry remembered the position of the cat better than the location of the kettle. It is the sound of a cat listening to during sleep that strengthens the memory of cats.

These selective memory enhancements are called targeted memory reactivations, and brain scientists are using TMR to conduct a variety of experiments.

Unit 9. The History of Drones

A drone is an unmanned aircraft that can be controlled by radio waves. It is remotely controlled on the ground, self-flight in automatic or semi-automated form according to the pre-programming route, or it is equipped with artificial intelligence to carry out tasks according to environmental judgment.

The drones come equipped with cameras, sensors, and communication programs that vary in weight and size from 25 grams to 1,200 kilograms. The drones were first created for military use, but they have recently been expanded to include high altitude imaging, delivery, and spraying pesticides. It is also a time when people can buy drones without any burden.

The drones were developed in the early 2000s as military unmanned aerial vehicles. In English, 'drone' means the buzzing sound of a bee, and it was named after the small plane as it was flying loudly.

Early drones were used by the Air Force to carry out bombing exercises against missiles, and their use was gradually expanded to patrol aircrafts and attack planes. The United States has used it as a military weapon because of its advantage of being able to bomb without a pilot aboard.

In 2004, the United States attacked Pakistan and Yemen with drones, which killed hundreds of civilians, including children.

The drones are now expanded to help businesses, media and individuals. Companies like Google, Facebook and Amazon are working hard to develop drones. Amazon Prime Air is a distribution service that replaces the work of courier workers. Amazon is waiting for permission from the U.S. Federal Aviation Administration and will also implement the drone delivery service in earnest once the regulations are lifted.

The drones have allowed the media to put various places into the lenses. It costs less to shoot than it did in the past, and can also be seen where it could not be accessed for safety reasons.

Recently, more people want drones. With easy access to the smartphone and the ability to take selfies, the demand for general consumers is expected to rise steadily.

Unit 10. Amelia Earhart

Amelia Earhart is a female pilot and writer in the United States. She was born in 1897 in the state of Kansas in the United States and has an adventurous disposition from childhood. He received his first flight training from Neta Snook, a female pilot, in 1921, and became the 16th to receive a pilot's license.

In 1932, Amelia made the solo flight across the Atlantic Ocean, and in 1935, she flew from Hawaii to California across the Pacific Ocean. I also flew from Mexico to California non-stop. She showed endless challenges to the sky, and people nicknamed her "First Lady of the Sky" and "Lady Lindy."

She was scheduled to make her next stop, a trip around the Earth. In 1937, he got on the plane with Fred Noonon and crossed the Atlantic Ocean to reach New Guinea. He made it back to the 'Electra' for his next destination, but did not show up at the scheduled stop, and vanished from the blue sky after the last contact. A massive search in the South Pacific was made, but not even the fragments of the plane were found, and in 1939, death was disposed after two years of disappearance.

In 2014, *Time* magazine named her disappearance "the world's top six aircraft missing." Then in 2017, a new suspicion was raised that Amelia was captured by the Japanese army. A black and white photo of a woman in the Marshall Islands with a shape and hairstyle similar to Air Heart was revealed at a shoe store.

One television program claimed she was captured by Japan's mandatory Marshall Islands, and was dragged onto a ship in a black and white photo. However, no more has been confirmed on the suspicion, making no conclusion.

There are many different movies and books about her.

Unit 11. Chuck Yeager

Chuck Yeager is a U.S. Army and air force soldier who broke the sound barrier for the first time in the world's history. He was born in 1923 and has survived to date.

He became the first U.S. military aircraft manufacturer to fly Bell X-1 from the Mojave Desert's Edward Air Force in 1947 and pass the Mach 1.05 (1.05 times the speed of sound) at the altitude of 13,700 meters. The velocity of sound is the speed of sound. The speed at which an object is referred to as Mach (MACH), which is often referred to as the speed at which the standard ambient temperature of 15 °C is approximately 340 m/s. In other words, the same speed as the sound is referred to as Mach 1, and a higher speed area is called supersonic.

He was able to shoot down 13 German fighter jets 64 times in World War II to receive the ace's title, and even after the war, he became a test pilot and was promoted to captain in his mid-20s.

People were delighted to be able to fly across the Atlantic in just two or three hours after the speed of sound passed, but the super plane remained in the combat zone only after the Concorde supersonic passenger plane between Britain and France stopped service in an accident in 2003.

He is a war hero in the United States, and the reason why he became such a legend is that only a handful of people in the world have moved from high school to star-administered soldiers. Since then, he has continued to fly supersonic at the age of 95, making his soldiers nervous by visiting frontline units, setting an example for many young pilots.

Unit 12. Try, Crash, Fly

Wilbur and Orville Wright were the first American brothers to make the flight in 1903 by building a powered plane that was larger than the air.

The brothers were born in Ohio in the United States. They have been interested in flying objects since childhood. Playing with things like gadgets and researching how they work. Their toys included gyroscopes, sewing machines that were old, and small, helicopter shaped toys that worked as rubber bands.

The brothers who did not finish high school properly began studying aeronautics in 1899 and became experts on the information that was available.

The first step in a powered flight was to make a glider that would carry a person's weight up. Strong headwinds were needed to test the glider. They spent four years studying and experimenting on Sandhill near North Carolina.

In 1900 they built a glider that was successful in supporting its weight, but it was difficult to control it. Wilbur the older brother saw the bird flying in the sky, studied the bird for hours, and found that it flew as it changed its wing shape. By designing a pulley and cable system that changes the shape of a glider wing in a similar way, mobility was assured in 1901 experiments. As a final step, you can add a lightweight engine, which is also designed and built by them.

It created the world's first power plane Wright Flyer in 1903 and made its first flight on December 17 that year. Although the flying time was 12 seconds, or 37 meters, the second and third pliers started to gain popularity in the United States and Europe.

Unit 13. New Technologies for Sportswear

For athletes to get the best results, their bodies are the most important, and exercise equipment and sportswear are second. It is being used in a more sophisticated way, adding scientific principles to various sports equipment. Let's take a look at a few things.

1. Athletic events wearing the second foot running shoes

Shoes that replace the feet in athletics play an important role. Sprinters wear shoes with hard soles, and long-distance runners wear shoes with soft soles. In the case of short distance skaters, shoes with hard soles are worn to reduce the weight of the body and maximize the rebound on the ground. On the other hand, runners who have to run marathons wear soft shoes, such as GRP, as they are most likely to cause stress on their feet if they wear hard shoes. If you are running a long distance, it has a sharp sole, making it more resistant to abrasion between the floor and the shoes.

2. A fencing competition using high-tech suits and swords

The most important part of the fencing competition is the fencing suit. Synthetic fiber Kevlar is a lightweight and strong material used in bullet-proof vests. The mask is also made of very tight stainless steel mesh so there is no danger of the sword entering between the mask nets.

3. Full body swimsuits that minimize resistance

The drag produced on the surface of a sports suit against water or air is called surface friction drag, and to minimize this, a full body suit is made of a material called a "fast skin" modeled on shark scales. They are thin, light, and resilient. He also reduced the resistance of water that was cut into small grooves like that of shark skin on swimsuits.

Unit 14. Swimming to Survive

Survival swimming is a basic way to survive by providing oneself with a condition in which you can float, move, fall, and breathe underwater. It is a short-term swimming technique that focuses on "breathing", "climbing" and "moving" in water.

It is also called "Leaf Survival Float" as it calmly stretches its arms and legs when under water, and floats itself in the sea. A Korean coach has developed a way to survive when drowning, reducing the body's waste as much as possible, maintaining its body temperature, and waiting to be rescued. When you breathe in through your mouth to make your body more buoyant, then when you lie in the supine position, open your arms gently above or below your head, leaving your face and two toes hanging on the surface. If movement is necessary, it can be moved using limb movements.

Major advanced countries have long required swimming classes.

In Britain, swimming is mandatory in all grades of elementary school, and it is also taught to be proficient in swimming at least 25 meters. In France, specific achievement standards are specified, such as a 25-meter freestyle at elementary, middle school, and a six-month long swim. In Germany, 36 hours is mandatory in Brandenburg. Lastly, Japan has strengthened swimming classes in all elementary schools after 168 students were killed in an accident in 1955.

Swimming is a mandatory subject because it is important to develop your ability to deal with emergencies.

Unit 15. Dodgeball

Dodge ball is a ball game in which two teams are divided into two games to hit the ball to the opponent team's player. Dodge ball's history is over 100 years old. In 1895, it was invented by William Morgan in Massachusetts in the United States. Now, it is enjoyed in about 30 countries around the world. I've played dodge ball a lot in school, but it's only been about 10 years since it started being introduced to the nation as a sport. There are about 400 dodge ball clubs, and the number is increasing.

As the ball moves at a faster speed, it consumes a considerable amount of energy, making one game feel longer (five minutes).

The Dodge ball game 1 consists of three sets, which are 26-meter by 16-meter wide, and larger than the volleyball court. The defense team shall be located inside the rectangle and shall be infield. On the other hand, there are offense teams outside the rectangle and they are called outfielders. If the player in the outfield throws the ball to hit the player in the infield, the score goes up. One team wins more points at the end of the set. The pass is allowed three times in a row, and the fourth person must strike. Attack within five seconds after receiving the ball, and if the opponent fails to catch no bound ball or is hit, the opponent scores the goal because it is recognized as 'out'. If a ball goes out of the court during a game, it is called the dead ball, and if the last person who touched it is in the infield, it is the same ball owned by the other team.

You can learn social skills and cooperation by playing dodge ball, and develop understanding and consideration for others. It is also a game in which creative strategies and tactics are used to build team unity and self-confidence.

Unit 16. Golden Time that Saves Lives

Golden Time is the time to fight for the lives of patients living in and out of hospitals. The life and death time of a severe trauma victim is one hour for emergency patients and three hours for stroke patients. It is a medical term referring to the time when damage is minimized after accident and the effects are best after treatment.

It is often reported that police officers saved precious lives with CPR. It is said that there are about 25,000 patients a year. If CPR is performed on a patient who has become a cardiac arrest site within the past four minutes, the chance of survival increases by 90 percent.

The heart acts as a pump for our body, pumping blood all over the body. A heart attack is a condition in which the pump is shut down. Heart attacks can disrupt blood circulation throughout the body, causing death or serious brain damage if left untreated. The brain can suffer permanent damage even if the blood supply is cut for four to five minutes.

Cardiorespiratory resuscitation is an emergency treatment that artificially circulates the blood when heart attacks occur and helps breathing. Even when the heart is paralyzed, it circulates blood, delays brain damage, and helps the heart recover from its paralysis.

Effective CPR methods are as follows:

1. If the patient is unconscious, place the patient on a flat surface quickly.
2. Tap your shoulder to check the perception.
3. Ask the neighboring person to report to 119.
4. Insert the fingers together, stretch both arms out, and center them on the chest of the patient.
5. Push hard behind the palm of your finger and press the chest firmly.
6. Press the button 100 to 120 times a minute to perform the procedure while screaming the number while pressing it at a depth of 5 cm.
7. Pressure the chest 30 times at first 100 beats per minute.
8. If there is no reaction after pressing the chest, perform artificial respiration. Bend your head back to secure the airway.
9. Hold the chin down by hand to prevent it from falling, then open its mouth wide and let the air in for a second.
10. Breathe in and open the patient's nose to circulate the air. After two artificial breaths, repeat chest compressions 30 times.