



# acadience™ reading

## Oral Reading Fluency

Student Materials

Level 6 | Progress Monitoring

## Large Print Edition

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# Kilimanjaro

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► On the east coast of Africa lies one of the world's most famous mountains. Once described as "wide as all the world, great, high and unbelievably white in the sun," Mount Kilimanjaro is truly majestic. Kilimanjaro is an especially dramatic mountain because it stands alone on a relatively flat plain or savannah. Kilimanjaro is the highest mountain in Africa. It is so tall that it has its own weather system. The base of the mountain is over twenty miles wide and it is more than thirty miles long.

If you were hundreds of miles away looking toward Mount Kilimanjaro, you would see the surrounding plains stretching off into the distance. Looking up from the plains you would see the clouds high in the sky. Above the clouds, like a land apart, you would see the top half of the mountain rising majestically above you.

Climbing the mountain can be very challenging. In preparation, you must be ready to hike all day carrying a large load on your back. To reach the summit, you must carry enough water, food and equipment for six days. In addition, your body must be ready for the high altitudes. If you get altitude sickness, you will need to hike down quickly as you risk becoming very sick.

There are five ecological zones on the mountain. You begin your hike in the first zone. The plains that surround the mountain have abundant

## Kilimanjaro, continued

lakes and forests as well as a wet and dry season. From the savannah you move into a lush tropical rainforest. As the air around the mountain rises and cools, it releases its rain on the forest. Wildlife abounds in the rainforest, including monkeys and stunning tropical birds.

Next is the heather zone, an area with low evergreen shrubs, followed by the high desert zone. Along the way you will pass high mountain lakes and glaciers. Finally, you will reach the barren summit zone that looks like the surface of the moon. If ever you reach the top of Mount Kilimanjaro, you will have experienced an unforgettable adventure.

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## No Dirt Required

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► Green plants are the foundation of life on our planet. Many animals eat only plants, and people depend on plants for food. Most of the plants that surround us grow in soil. Plant stems need soil for support, so they can stand upright and get enough sunlight. Plant roots extend into the soil to reach the water and nutrients the plants require. As you can imagine, growing enough food for the entire planet's population requires abundant land and water.

Soil contains minerals and salts that plants need to grow. When it rains, these nutrients dissolve in the water, and are absorbed by the roots of plants. Then, with the proper nutrients and the right amount of water and solar energy from the sun, photosynthesis enables plants to produce their own food.

Some time ago, people discovered something astonishing: plants can thrive without being planted in soil! Growing plants in water instead of soil is called hydroponics. “Hydro” means water, and “ponos” means work, so “hydroponics” means working water. Plant roots are fed a liquid solution of minerals and salts that are dissolved in water. How do hydroponic plants support themselves without any soil? The plants are hung in a net above a tray or bucket of solution, with their roots dangling in the solution.

## No Dirt Required, continued

Large numbers of hydroponic plants can be grown in a greenhouse, which uses much less land than growing plants in soil. One surprising fact is that growing vegetables in water actually saves water because the solution can be reused many times by just adding minerals and nutrients. In addition, scientists are learning how to use hydroponics to make vegetables more nutritious for people.

People like to have fresh vegetables, such as tomatoes, all year round, not just in the season when they grow in their area. Many areas of the world have very poor soil that is not suited for growing plants, and other areas don't have the proper climate. With hydroponics, people around the globe can have fresh vegetables whenever they want them.

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# Making a Comic Book

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► Comic books feature many of the world's most popular characters. Superheroes, such as Superman or Batman, are popular comic book characters. If you're interested in creating your own comic book, here are some suggestions to get started.

First, brainstorm some topics for your comic book. Maybe you want to write about a superhero stopping an evil villain's plan for world domination. Perhaps you want to tell about a resourceful explorer, or a group of friends investigating a mystery. Come up with a plot and try to structure your story so you know approximately what you want to happen on each page. Don't worry about getting it perfect just yet.

When you've decided on the content and structure of your comic, experiment with different appearances. You can investigate different drawing styles and come up with different looks for your characters. It's a good idea to practice drawing your characters from different angles so that you'll be able to draw them consistently in your comic book.

Now you can begin to make your comic. Plan out what should happen in each panel and draw the panel borders. Don't start sketching until you've added the talk balloons and at least sketched in the text. This way, you won't run out of space for your dialogue, and you'll be able to draw around the text so no important details in the picture get

## Making a Comic Book, continued

obscured. When you do start to draw, sketch lightly at first. Drawing and re-drawing can make your work look messy if your lines are too dark.

When your sketches are done, you can outline them in ink. This helps give your comic its style and personality, and can make your drawings stand out. Play around with using different thicknesses of ink to define features and outlines.

Soon, your comic book will be done. If you want, you can make copies and give them to friends. Maybe you'll even want to make a series, so you can follow your characters and their adventures through more comics.

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## Bike and Build

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► Every summer, groups of young people travel on bicycles to earn money for a good cause. These bicyclists are part of Bike and Build. Bike and Build is an annual event in the United States that raises money to build homes for low-income families. The cyclists begin on the East Coast and take separate routes to the West Coast. In the first year of Bike and Build, there were two routes. Every year brings an additional route. Routes range from one almost hugging the Canadian border to one traveling through the country's southernmost states. The participants pedal around seventy miles a day almost daily for two months and cover several thousand miles.

Each group has thirty students, and each student must raise a certain amount of money ahead of time. The funds are donated to help build affordable homes in communities around the country. The groups ride from town to town and stay overnight in churches or community centers. Local residents welcome and feed them. Several times throughout the trip, the cyclists stop briefly to help build homes. At those sites, they learn all about the preparation and work required for building a home.

The cyclists make sure to talk to people they meet on their trip about their group and the need for affordable housing. Each rider is responsible for giving a presentation at a stop along the way to talk about the cause.



## **Bike and Build, continued**

The riders thereby raise awareness about their efforts, and raise more money for building more homes.

Buying a house is costly, and many deserving families need a little financial help so they can live in a good, safe place. Building houses allows families to enjoy the security of having their own home. In this way, the people who ride in Bike and Build are changing lives for the better.

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# Subway Musician

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► I was taking the subway home from school. Walking down the stairs leading to the subway, I could hear the familiar squeal of brakes and rumble of cars. When I reached the platform, two flights down, I put my token in the slot at the turnstiles. I could hear the faint sound of music amid the squeal of brakes and rumble of passing trains. I turned the corner and walked onto the platform for uptown departures. The silver cars shooting past produced gusts of wind that made my shirttails flap.

On the platform, some people slouched on benches, some stood; many were reading newspapers, seemingly unaware of the world around them. I located the source of the music. A cheerful performer situated near the opposite wall was singing and accompanying himself on a steel drum. Clad in jeans and a tropical shirt, he had alert dark eyes and strands of long, black hair. His song was an ongoing narration of everything he observed on the platform, expressed with a gentle good humor.

The man joked and smiled while he sang. I wondered about where he lived, and what he did when he wasn't performing for subway commuters. Did he have another occupation? He observed me watching him and nodded pleasantly while launching into a new song. I was even featured in his next verse, "Traveler watching me, I'm watching him."

## Subway Musician, continued

Just then three lights came out of the blackness around a curve, and shone on the tile walls of the tunnel. The people who were sitting stood and folded their papers. The train stopped and people began boarding.

The singer initiated a new song in which he wished happiness and good fortune to the people boarding the subway. As I boarded the subway and looked back at the platform, the man waved, but I couldn't hear his voice anymore against the noise of the train leaving the station. I could still see him, though, smiling and singing as we departed.

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## Sailing on Land

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► If you had to cross a large expanse of desert, how would you choose to do it? Walking would be unthinkable, and a camel might be difficult to find and a challenge to ride. What if there was a boat powered by the hot desert winds that you could sail across the desert?

You may be surprised to learn there is such a method of transportation. You may also be amazed to discover that these kinds of vehicles have existed for centuries. They are referred to as sail wagons or land yachts.

Sail wagons, like boats, are powered by the wind in their sails. Like wagons, they have wheels, although usually just three. The two large wheels in front with one smaller wheel in back form a triangle, similar to the shape of some sailboats. The land yacht captain, called a pilot, sits or lies down in the body of the vehicle and controls the sails to catch the prevailing winds. He or she uses pedals or levers to steer the vehicle.

Land yachts were initially invented in ancient Egypt where they were used for pure enjoyment and to entertain guests. Fun is still important, but land sailing has evolved. Today, it is mainly a competitive racing sport held on a variety of hard surfaces, such as packed sand and pavement. Land sailing races in colder countries such as Canada take place on vast expanses of ice, thereby turning the land yacht into an

## Sailing on Land, continued

iceboat.

Some land sailors particularly enjoy the quiet power of the wind. Others love the peace and solitude offered by sailing. Most pilots love the speed and can travel at two to five times the speed of the wind on land and up to eight times the speed of the wind on ice. That's moving pretty fast!

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## Let's Look at Asia

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▶ A continent is an area of land that is set apart, or distinct, from other land masses. There are seven continents on Earth, and the largest of those is Asia. This huge region also has the most people, with more than 60 percent of the world's total population. If you look at a map of Asia, you will see that it is home to many different countries, whose people speak many different languages.

Such a large continent has a vast number of landforms, from the highest mountains to some of the largest plains in the world. The continent is interspersed with many rivers and lakes and bounded by several oceans. In addition to all the water, there are also huge expanses of desert, some of which are hot and dry, while others are cold and dry.

The climate of Asia is as varied as its land and people. In the far north, winters are long and cold, while summers are short and cool. Farther south, the climate becomes milder, with longer summers and wetter winters. Heavy rains called monsoons frequently flood parts of the countries in southern Asia, but other areas have wonderful, sunny summers.

As you might imagine, with such diverse climates and lands, the animals that live in Asia are also many and varied. Reindeer live in the cold north, and giant pandas live in the central regions. Tigers and

## Let's Look at Asia, continued

gorillas live in the rainforests, while gazelles and wolves populate the hills and plains. People have domesticated many of the animals, including the water buffalo.

Many people in Asia make their living by farming. They harness water buffalo to plow their fields and pull their carts. Rice is a basic food in Asia, along with fish and many delicious vegetables. Most of the rice that people eat throughout the world is grown in Asia. Although Asia has many differences from other continents and regions, it is an important part of the world community.

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# Ice Country

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► The plane's skis landed on the snow-covered runway. Inside the plane, Alison felt ready for her first day at her new job as a biologist in Antarctica. As she disembarked she took a deep breath and exhaled. She laughed as she saw her breath hanging as a thin fog in the air. In such a cold environment she would get used to seeing her breath.

Alison glanced at Victor, the other biologist along on the expedition to Antarctica. He was tugging his parka tight to keep out the frigid wind. They took in the scene, and they both grinned in delight. Beyond the edge of the bare rock lay endless whiteness, sparkling in the bright sunlight. Alison's main responsibility was to study the sparse vegetation in the dry valleys near the station. She was also determined to spend as much time as possible farther out on the ice sheet.

As a biologist, Alison was attracted to Antarctica for the simplicity of its life forms. Not much can live in the hostile environment, except under the sea. It is almost impossible for plants and animals to live on land. Alison would study the lichens that grew between the grains of sand inside sandstone rock. These tiny plants receive just enough water and sunlight to allow photosynthesis during a short time each year. Their growth rates are so slow that scientists estimate some of them may be thousands of years old.



## Ice Country, continued

Alison looked around the station site and was glad that she would be living there with over a thousand other people. It would be nice to have company and a warm place to spend time in between her experiments and explorations. She hoped some of the more seasoned scientists would show her the ropes and take her out on the ice, because she was excited by the idea of seeing a whiteout. A whiteout is when thick snow and overcast skies combine to make everything appear white. In a whiteout, she wanted someone with her who knew how to survive the adventure.

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# Diana Nyad

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► Most people would be happy with just one of Diana Nyad's many achievements. Diana first became famous as a distance swimmer.

Next, she became a television speaker, and after that she hosted a radio program. Then she began a public speaking career and, at the same time, started writing for the newspaper. She has also written several books.

Diana first learned to swim before she was one year old. At the age of eleven, she joined the swim team at her school. By the time she was in high school, Diana was winning events at swim meets.

After high school, Diana discovered distance swimming. She trained for a distance race, finishing in the top ten overall and setting a new women's record. After that, Diana began swimming around the world in exotic and dangerous places like the Nile River.

Diana's ocean swims have set new records and excited many people all over the world. She became the first person to swim the one hundred miles from the Bahamas to Florida. This was the longest swim in which neither a shark cage nor swim fins were used. She was not able to swim from Cuba to Florida, but trying made her special. Everyone was thrilled by the courage of the young woman who swam for days in waves four to six feet high.

Diana's intelligence and warm, outgoing personality led to her career

## **Diana Nyad, continued**

in television. In the course of her work as a journalist, she swam with whales and bicycled in exotic locations. She was added to the National Women's Hall of Fame as a result of her many achievements. With her knowledge and skill in telling stories and excellent sense of humor, Diana is in high demand as a speaker.

In earlier times, people's last names described their character or their job. Diana's last name suits her perfectly. It comes from a Greek word, which refers to a female spirit who lives in and presides over bodies of water.

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# An Underground Journey

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► After voting on their next field trip, the class decided to go underground. Mr. Lawrence approved of their choice because he had toured the Oregon caves before and found them fascinating. He was eager to share his experience with his students, and he knew their ranger guide would teach them interesting facts about the caves.

The bus carried the class past scenery that varied from large towns to old-growth forests. The day was sunny and warm, and many students doubted whether it would be cold enough to need the warm clothing that Mr. Lawrence had required them to bring. He assured them that being in the caves was like being inside a refrigerator.

The students had researched the caves before they visited, so they already knew something about what they would find. The caves contain fossils of animals, such as jaguars and grizzly bears. They are home to many varieties of insects, and bats roost in the cool, protected darkness. Students were surprised to learn that the stream inside the cave is a link to the Pacific Ocean.

Underground, they found new marvels. Beautiful marble rock lined the caves, and mineral deposits glowed in the light. The ranger showed them ancient stalagmites and stalactites, formed by water dripping through the cave ceilings. She told them an easy way to remember the

## **An Underground Journey, continued**

names of the formations. Stalagmite has a “G,” for ground, so they grow up out of the bottom of the cave. Stalactite has a “C,” for ceiling, so they hang down from the top.

It was cold under the ground, but climbing the more than five hundred steps in the cave helped the students stay warm. Still, they were glad they had jackets. When the tour was over, the students and Mr. Lawrence thanked the ranger. They took the ranger’s suggestion and went to eat their lunch at a wonderful spot under the trees. While they ate, they talked about all the incredible things they had seen in the underground caves.

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# The San Juan Islands

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► There are hundreds of small islands in the far northwest corner of the United States. These are the San Juan Islands, and they are a favorite vacation spot because of their good climate and many natural attractions. One reason visitors like to come to the islands is that many orca whales live in the waters near their shores for several months during the year. Some even stay year round, making the area a perfect place for whale watching. In fact, the largest island is named Orcas Island.

The second largest island is San Juan Island, home to Friday Harbor, the islands' main town. San Juan Island is also known as Pig War Island, a name that refers to an event that happened when American and British settlers lived on the islands. A British pig that kept eating an American settler's garden nearly caused a battle between the two countries! Fortunately, nothing serious happened, and both countries ruled the islands together for many years. Today, the islands are part of the state of Washington.

Glaciers carved the islands millions of years ago, leaving a combination of flat land and mountains. Today much of the land is covered with forests that provide habitat for a variety of wild animals. The islands are home to hundreds of different birds, from large bald eagles to tiny hummingbirds. There are many shore birds as well,

## The San Juan Islands, continued

including geese and swans. Many seals and sea otters join whales in the cold, clear waters surrounding the islands. Much of the region is protected as a sanctuary for wildlife.

Visitors can fly to the islands, or they can ride ferries from the mainland to the islands and from island to island. There are many wonderful things to see and do. Tourists can hike or go horseback riding, or they may choose to paddle kayaks or go fishing. Whale watching and wildlife viewing are among the most popular tourist attractions. It is not surprising that people like to visit the San Juan Islands!

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# The Importance of Exercise

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▶ Three times a week, Kim stops by a gym after school to work out and on the weekends, she likes to go running with her parents. She knows that getting plenty of exercise will help her stay fit. “My parents like to stay fit,” she explains. “Their interest has shown me the value of exercise. It also gives us something enjoyable to do together.” Kim and her parents are lucky. By exercising often, they will prevent many health problems throughout their lives.

Studies have shown that regular exercise can help prevent problems such as heart disease and cancer. Yet exercise does more than just prevent problems, it also helps people relax, gives them more energy, and improves their quality of life. Some people say that exercise even helps to lift their spirits and improve their attitude.

Why does exercise have so many health benefits? One reason is because exercise helps the blood circulate through the body by building muscles, burning fat, and making the heart stronger. Having strong muscles, in turn, helps to support the body’s framework, the skeleton, so you have fewer back problems. Most important, studies have shown that people who exercise regularly tend to be healthier and to live longer.

It is easy to start an exercise program with an activity that you enjoy. Keep in mind that each form of exercise has something different to



## The Importance of Exercise, continued

offer. For example, dancers enjoy moving to music, and bicycle riders enjoy speed. When you choose an activity, consider whether you want to exercise alone or with others. If you enjoy being with friends, you might consider a team sport or running with a group.

After you have selected an activity, it helps to set an exercise goal. Most experts agree that people need to exercise for twenty to thirty minutes at least three times a week. During this time, be sure to work up a sweat and get your heart pumping.

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# Drifting Downriver

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► Sometimes life takes you in unexpected directions. It took Jeremy's family to a new continent when his father got a great job in Costa Rica. Jeremy loved the coastal beaches of their new country, but the mysterious rainforest in the interior is what really fascinated him. He read everything he could about the rainforest and developed a passion to explore it. He didn't feel quite ready to hike into such an unfamiliar place, but he thought seeing it from a river raft would be an awesome experience.

Jeremy's parents agreed he could go, but he'd have to choose a tour with an experienced guide. His mother further specified that he could only travel on a calm part of the river for his first trip. He would have to wait until he was older to brave the rapids on the more adventurous rivers.

Jeremy joined the guide and four other people on a large rubber raft. One of the travelers was a boy named Carlos about the same age as Jeremy. The rafters were astounded by the variety of sights and sounds of the jungle. Screeches and brightly colored birds startled and amazed them. Grins never left their faces, and their heads turned constantly as they examined everything around them.

Their guide taught them a great deal about rainforests. They learned

## Drifting Downriver, continued

how important rainforests are to the ecology of the whole world.

Rainforests produce oxygen and absorb great amounts of carbon dioxide.

They learned that insects outnumber any other animal in the jungles.

Rainforests also help clean and recycle water in the environment and produce many different foods. Experience showed them that it is hot and damp in a rainforest, even under the thick cover of trees.

The raft trip was beyond his expectations. Jeremy learned a lot, and he made a new friend. He knew he was going to like living in this wonderful and exciting place.

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# Dubai: A City of Innovation

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► One of the most exciting cities in the world is home to many innovative sights. Dubai, a city on the Persian Gulf, was initially settled thousands of years ago. The city you find today has grown and developed rapidly to become one of the world's most modern cities. Tourists from around the world visit Dubai to admire the innovative architecture.

One of the most famous structures in Dubai is a tall hotel that looks like a sail blowing in the wind. At the time of its construction, this unique hotel was the tallest in the world. At the top of the hotel, visitors can have afternoon tea with an impressive view of the city. Some say it is like sitting in the sky.

Another famous structure in the city is a ski park called Ski Dubai, which is one of the largest indoor snow parks in the world. Year round, the park's five ski runs are covered with real snow. In Dubai, temperatures in the summer often reach over one hundred degrees, but inside this park it remains nice and cool. Visitors can rent all of the winter clothing they need to play and ski in the park.

Off the coast of Dubai are artificially created islands. The first series of islands was constructed to resemble a palm tree when seen from above. The second series will include over two hundred smaller islands that form a map of the world.

## Dubai: A City of Innovation, continued

The building projects still being planned may be the most exciting of all. An architecture firm recently announced its plans to create the Dynamic Tower. The tower will be the first ever moving skyscraper. The apartments in the tower will rotate a full three hundred and sixty degrees. The apartment owners will be able to adjust the direction they face whenever they desire. When complete, the project will be one more astounding innovation found in the exciting city of Dubai.

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## A Web Site for Volunteers

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► “Helping with the Library Tutoring Program is really fun,” reports Shanna, age twelve. Shanna has signed on as a volunteer with the program at the public library in her town. In the program, students in middle school are paired with students in first and second grade. They read stories to the younger children and also help them with their homework. “The best part of being a tutor is that I get to help someone practice reading, and have fun too!” Shanna explains.

Shanna found her volunteer job at a web site called Volunteer Match. The purpose of the web site is to help people find great places to volunteer. As its name suggests, the service matches volunteers’ skills and interests with needed services.

Here’s how it works. When Shanna visited the site, she first entered her zip code and specified the distance she was able to travel to work. With a click of the mouse, a list of volunteer opportunities in her area appeared. She noticed the position at the library and clicked again. A description of the program appeared, and at the bottom of the page, Shanna found an email address and a telephone number. “It was extremely simple,” she says.

Some people who visit Volunteer Match already have an idea about what they want to do. For example, a person may want to help at an art

## **A Web Site for Volunteers, continued**

museum. To speed up their search, these people can indicate specific activities that match their interests and skills. With over thirty thousand listings, anyone who wants to help others can find an interesting job.

Volunteer Match is not only great for people who want to volunteer. It also helps organizations that use volunteers by saving them the time and effort it takes to find helpers. Since it was started, more than a million people have found volunteer positions on the web site. If you or your friends want to make a difference, check out Volunteer Match.

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# Horseback Trekking

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► Gregory lived on New Zealand's South Island with his parents and his brother Murray. Gregory and his family were looking forward to their vacation to the country's North Island. The North Island offered several different vacation opportunities, and this year, the family decided to take a horseback riding trip. Gregory and Murray read about different trips and found one that sounded like fun. It was a trek from coast to coast, which lasted a full week and would take them through nearly every kind of geography on the island. The whole family was excited about it. They had all ridden horses before, but none of them had taken such a long trip on horseback.

The trek began on the east side of the island, where the beaches had exquisite white sand. Each person chose a horse and rode for a while to get comfortable with their steeds. Their host was a friendly, outgoing tour guide named Kirina.

The entire family was astonished by how much of the beauty and diversity of the North Island they could see on horseback. They rode on dunes high above the sea and through ancient pine forests. They crossed rolling green hills dotted with sheep and cattle. They followed narrow trails into native rain forest, and they crossed shallow streams. They swam in clear pools under beautiful waterfalls.



## Horseback Trekking, continued

On several days the family went into small towns to sample produce from the farmers' market. They stayed at village inns and spent two nights with families, always grateful for the friendliness of the people. When they finally got to the western shore, they were delighted to find wild seas and spectacular beaches with black sand.

At the end of the trek, the family said goodbye to Kirina and their horses and took a shuttle back to Auckland, where they caught a plane for the short ride back home to the South Island. They were all happily exhausted, and agreed it was one of their best trips ever.

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# The Kon-Tiki Expedition

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► In one of the great adventures of our time, a crew sailed across the ocean on a primitive raft. They began in Peru and sailed more than four thousand miles to the Polynesian Islands. The voyage was called the Kon-Tiki Expedition. Many people wondered how the original Polynesian settlers had first traveled to the islands. The crew of the Kon-Tiki expedition believed that the early settlers had sailed to the islands on rafts, and by making a similar voyage, the expedition successfully showed that this theory was possible. They made a raft of wood and natural materials, with a floor tied together with ropes. It moved by a simple sail catching the wind, and there was no way to steer it.

Nearly sixty years later, the grandson of the leader of the Kon-Tiki Expedition was part of a new team that followed the same path. This trip was called the Tangaroa Expedition. Modern science and a greater understanding of history had taught people more about how ancient rafts were built. The new raft was designed to be even more like the rafts of the old world.

The purpose of the first expedition was to prove that the early Polynesians could have traveled there by raft from South America. The purpose of the second was to check the health of the Pacific Ocean. It was also a celebration of the earlier trip. Although it would have been

## **The Kon-Tiki Expedition, continued**

easier to use a modern boat, the crew wanted to attract attention to its study of the ocean. The crew traveled slowly on the raft and they were close to the water. This made it easy to take samples from the surface.

The Tangaroa Expedition was a great success, just like the Kon-Tiki before it. Both were trips back in time as well as experiments that would teach people of the future more about people in the past.

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# The Great Bird Count

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► A group of kids was chatting in excitement. They were looking at something on the craft table. Alberto walked to the students and peered over Hayley's shoulder. He saw several graphs and charts. "What's going on?" he asked.

Hayley told him they were looking at the results of the Great Backyard Bird Count from the year before. She explained that it takes place every February in the United States and Canada. People in cities and in the countryside go to different outdoor spots with a bird checklist. They count or estimate the kinds and numbers of birds they see. Then they fill out the checklist and send it in online. Scientists use the information in a variety of important ways.

Alberto thought he'd like to participate this year, so he joined the group. He learned that bird populations change constantly and that scientists cannot possibly keep track of how birds move throughout the continent. They rely on the help of individuals who are willing to count birds for four days in February. From the massive amount of information they receive, they are able to tell which bird species are increasing or decreasing. Tracking bird populations can indicate how changes in the environment affect birds. In addition, the data tell scientists what kinds of birds live in urban and rural areas.

## The Great Bird Count, continued

Carefully following the rules for the count, Alberto decided to spend at least fifteen minutes a day in a different location. He went online and registered to receive a regional checklist of birds in his area. He would complete a checklist for each location where he counted birds, and he would submit it online every day. He realized that first he needed to learn which birds were most likely to be found in his area and how to identify them.

Alberto had a lot of preparation to do, but he was lucky that Hayley agreed to be his partner. They would be busy all of January getting ready for the bird count, but they were both excited about the prospect of learning about birds and helping the scientists.

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# An Unusual Island

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► Hundreds of huge carved statues stand on one of the most isolated places in the world. This fascinating place is called Easter Island.

The sculptures were carved out of volcanic rock called tuff, using stone chisels, many of which are still lying in the old quarries. The statues have huge heads. Some are over thirty feet tall and weigh more than eighty tons. Most are much smaller, but even the small ones are still over fourteen feet tall.

Over the years since the construction of the statues, much of the information on how they were built and what they meant to the people on the island has been lost. People today think that each statue took five or six men as long as a year to complete. Moving the giant structures would have been very difficult, requiring up to two hundred men to pull one into place. Nearly one thousand statues are known to exist on the island and in museums around the world.

The native people of Easter Island have had to struggle to make it through many hardships. At some point in the past the forests that once covered the island were destroyed. Birds and wildlife disappeared once their forest habitats were gone. Europeans eventually arrived and created further problems for the island and its people. It is extraordinary that the statues have survived and been preserved through all of the turmoil.

## **An Unusual Island, continued**

Easter Island is now part of Chile, and it draws many visitors every year. People explore the land by hiking and horseback riding, and they take to the sea for scuba diving and surfing. But most of all, they still ask the same questions. Why would a group of ancient people work so hard to carve hundreds of statues? Why were many of the statues found toppled over when explorers arrived? These and many other questions remain unanswered and are part of the mystery of Easter Island.

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# How We See

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► Take a look around you. Your eyes tell you many things about the world around you. Your eyes are the complex sensory organs that use light to identify shape, size, texture, and color. They tell you about distance, the speed, and the direction of moving objects. They are important to learning about the world in which we live.

The eye has multiple parts, all contained within a sphere about one inch across. The sclera, or hard outer covering, maintains the eye's shape. The clear front part is called the cornea, and light enters the eye through this thin layer. Behind the cornea is the iris, the colored part of the eye that surrounds the pupil, or the black opening in the center of the iris.

The iris expands and contracts around the pupil to let different amounts of light into the eye. A clear lens focuses light through the liquid center and onto the back of the eye. Muscles move the lens and the whole eye, so the eye can see things from many angles. The back part of the eye is lined with a membrane called the retina, with cone and rod cells that are sensitive to light. Rods allow us to see in low light, and cones help distinguish colors and details.

When light strikes the cones and rods of the retina, a chemical reaction starts. An electric charge is created that moves along the optic nerve. This nerve is connected to the brain where light is interpreted as



## How We See, continued

colors and objects. What we perceive are actually surfaces of various shapes and sizes that reflect different wavelengths of light. The brain interprets what we are seeing.

Vision is a complicated process in which light energy is changed into electrical energy for our brain, allowing our eyes to inform us about our world.

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