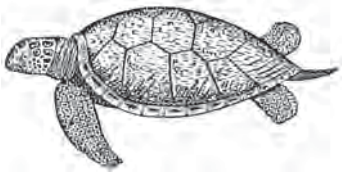
Waiting for Turtles



Lia, Martina's older sister, is a scientist. For years, she has studied turtles living off Australia's Great Barrier Reef. This was the first time Martina had helped her sister.

Martina and her sister were hiding quietly. Using binoculars, they depended on moonlight to look for female turtles coming ashore. Martina kept her eyes focused on the water, waiting for a turtle to appear. "Where are they?" she whispered to her sister.

"If a turtle comes, you'll have lots of time to watch," Lia answered. "Laying eggs is hard work. First, the heavy turtle moves slowly up the shore. Then she uses her front flippers to dig a pit to keep her eggs warm and safe from predators. After laying perhaps more than 100 eggs, the turtle will use her back flippers to cover them with sand." Martina was listening carefully when Lia nudged her. "Look, Martina!" she whispered. "The first turtle is here!"

Martina whispered back, "Thank you for bringing me!"

QUESTION

Colors and Patterns

Almost 2,000 species of fish live on Australia's Great Barrier Reef. Many of these fish have remarkable colors or patterns. Scientists have theories to explain the diversity of fish "costumes" found in the ocean.

One theory proposes that fish need a means of identifying their own species. Distinctive colors or patterns may help. Or, colors and patterns may help them recognize predators. Avoiding predators improves chances for survival.

Another theory suggests that brightly colored fish are better camouflaged. They blend in with the brightly colored coral polyps living on the reef. Predators can't see them.

Some fish have small back spots on their back fins. These spots, resembling eyes, can attract predators to the wrong end of a fish's body. Upon contact, the fish swims to safety.

Theories may explain the purpose of colors and patterns. But no doubt, most visitors simply enjoy the visual diversity they see on the reef.

Taking a Trip Together

"Where would you like to go while we're in Rome?" Nora's grandmother asked Nora.

"Somewhere that makes good pizza!" Nora answered, making her grandmother laugh.

"Surely there are other places you'd like to go," Grandmother asked.

"Definitely," Nora said. "I want to look through the big eye at the top of the Pantheon. I want to throw a coin for luck in the Trevi fountain. I want to sit in the stands of the Colosseum, where gladiators once fought and ships sailed. I want to watch artists paint in the Piazza Navona. I want to eat dessert in a café..."

"Stop, stop," Grandmother said as she raised a hand to her heart. "I'm exhausted, and our trip hasn't begun!"

"Well, Grandmother. Some people call Rome the capital of the world. There's a lot to see. Maybe we should consider renting scooters," Nora said smiling.

The Roman Forum

In ancient Rome, people needed a place to meet and do business. So, they built a forum. The ancient city grew around it.

Today, the Roman Forum, or simply Forum, is filled with ruins. They include the remains of temples to Roman gods. There are also public buildings where judges held court and people conducted business. The headquarters of Roman kings are there. So is the platform politicians used to speak to crowds. The platform overlooks the site declared to be the center of the city. It was the point from which and to which all distances in Rome and the Roman Empire were measured.

The widest street in the Forum is called the Via Sacra, or Sacred Road. The road passed by important religious buildings before heading toward the Colosseum. The road was the site of festivals, military parades, and day-to-day activities, such as shopping and banking.

In time, the Forum crumbled and was buried. It wasn't until the early 20th century that the Forum was uncovered once more for visitors from around the world to see.

Feeding the Birds

Jasmine watched from the window. There he was again, a determined and clever squirrel. He scurried down the line to a new bird feeder. He landed on the feeder, causing birds to scatter, squawking and fluttering their wings wildly. Soon, the animal's cheeks bulged with seeds.

Jasmine was going to have to outsmart the squirrel. She searched the Internet and found a great idea. Immediately, she called neighbors to ask for empty plastic soda bottles. Jasmine collected four bottles and poked a hole in the bottom of each bottle. She took down the bird feeder, removed the vertical line, and attached two horizontal lines to the feeder's roof. She threaded each line through two bottles before tying the ends around tree limbs. Now the bird feeder stretched between two trees.

This time, the squirrel ran across the line. As he stepped on a bottle, the bottle spun, sending the squirrel to the ground. Although the squirrel tried several times, he was no match for Jasmine's invention.

Dr. Daniel Hale Williams

Born in Pennsylvania in 1856, Daniel Hale Williams was the fifth of seven children. His father died when Williams was only eleven years old. His mother, unable to support all of the children, sent some to live with relatives. Williams went to live with a shoemaker. Later, he joined his sister in Wisconsin, where he opened a barbershop.

In Wisconsin, Williams met a physician and became fascinated by medicine. He worked as an apprentice to the doctor, and in time, went to medical school himself. After graduating, he opened an office in Chicago. But Dr. Williams did much of his work, including surgery, in the homes of his patients. Understanding how deadly infections could be, Dr. Williams used techniques for keeping his instruments and patients clean. In time, he used those techniques in his own hospital. His patients did so well that the hospital soon grew. It was at this hospital where Dr. Williams performed the first successful open-heart surgery. He repaired a rip in the sac around the patient's heart. Thanks to Dr. William's skill and cleanliness, the patient went on to live a full, healthy life!

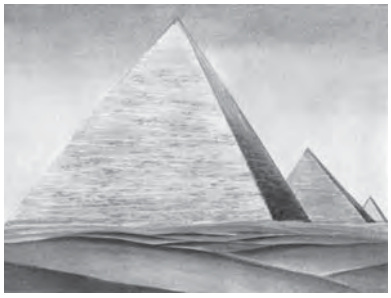
Pen Pals

As a student of Cairo Middle School, Olivia was thrilled. Her teacher had contacted a teacher in Cairo, Egypt, to begin a pen-pal program between their classes. Now Olivia had a pen pal named Akila. Like Olivia, Akila was 13 years old, but Olivia imagined that their lives were quite different.

In her first letter, Olivia asked Akila about her school. Akila wrote back, saying that she goes to an international school. She takes classes in English, French, and Arabic. "Imagine," Olivia thought to herself, "being able to speak three languages!" Akila also told Olivia that history is her favorite subject, and that recently, her class had taken a field trip to the Egyptian Museum. She saw unwrapped mummies, jewels, and colorful mummy masks there.

In her last letter, Akila invited Olivia to visit her in Cairo one day. Then Akila could visit Olivia. What a great idea, Olivia thought with a smile. Their cities shared the same name, but the name might be the only thing they had in common. What a great adventure she and Akila were going to have!

The Great Pyramid of Giza



A huge and ancient pyramid stands outside the city of Cairo, Egypt. The Great Pyramid of Giza is one of the Seven Wonders of the Ancient World. Perhaps built as a tomb for an Egyptian pharaoh named Khufu, the structure is about 5,000 years old.

It took workers twenty years to build Khufu's pyramid. Some say as many as 300,000 workers carried more than two million stones to make the pyramid. Each stone weighed more than one ton. The workers did not have the tools we have today, yet the pyramid's base is almost a perfect square.

Pathways take visitors and scientists into the pyramid. Researchers found the king's sarcophagus, or stone coffin, in a gallery, or hallway. But they are unsure if the coffin, which has no lid, ever held the king's body.

Two air shafts connect the King's Chamber to the outside, where they let in light from major stars in the Orion constellation. The Queen's Chamber also has air shafts that open to the stars. Some historians think ancient Egyptians believed the spirits of the dead rose through the shafts and to the stars.

A Curious Meeting

Tucker and his dad were going to join other hikers for a special trip to the Canadian tundra. They bought special clothing and shoes for the trip. They bought new sleeping bags, too. Tucker had everything packed in the car one week before they left.

On their first day, Tucker stayed close to his dad. Their group walked in a single line behind the guide. The ground was spongy with melted snow. Colorful wildflowers grew everywhere. The guide raised her hand and stopped. "Stand still for a moment, and you may see a small brown rodent peek from the opening to one of its tunnels. It's called a lemming. Two kinds of lemmings live in the Arctic tundra. They both look brown in summer." Tucker and his dad looked around them. The guide was right. Tunnels crisscrossed the ground.

"Look!" whispered Tucker's dad. "I see something." Tucker looked in the direction his father was pointing. He saw several lemmings, all popping out from their tunnels to stare back at the curious hikers.

The Collared Lemming

Picture a hamster, and you can picture a collared lemming. Both rodents look similar, with soft fur, short tails, and small ears. Lemmings have special front teeth. These incisors continue to grow throughout a lemming's life. Gnawing on tough plant parts helps wear the teeth away.

In summer, collared lemmings have gray fur with a thin black stripe along the back and light gray fur on the belly. They have a light brown collar around the chest. In winter, a collared lemming's fur turns white, making it look like a cotton ball on the snow. Collared lemmings may be the only rodents that change colors with the seasons. The animals remain active even in winter, so white fur helps them hide from predators such as owls, foxes, and polar bears.

Lemmings dig tunnels in the ground during warm weather and in the snow during cold weather. These tunnels help protect lemmings from the cold air and from predators. The tunnels have many different chambers, or rooms. Some rooms are for nesting. Others are for storing food and wastes.

An Unexpected Portrait

Luis was excited. He was going to help Ms. Alvarez teach art to students in the after-school program. Luis took art classes with Ms. Alvarez in middle school. He especially loved painting, so Ms. Alvarez asked him to help her. Luis felt honored to be asked. He really wanted to do a good job.

As students entered, Ms. Alvarez directed each of them to an easel. Then she showed them their supplies and explained how to use them. She told them they were going to begin by painting a portrait of a great painter. The students look puzzled. "Who is it?" asked a student.

"Luis," Ms. Alvarez responded. Luis looked surprised as Ms. Alvarez guided him to a chair in the center of the room. "I don't understand," he said.

"I can think of no greater painter in this room than you," Ms. Alvarez replied. "Class, pick up your brushes. Let's begin!"

In the end, some of the finished portraits resembled Luis. Others didn't. But in all the portraits, students had painted a proud and smiling painter.

Diego Rivera

Diego Rivera was born in Mexico in 1886. Even at age two, Diego showed talent. So, Rivera's father set up a studio where his young son could draw. At age 11, Rivera began to take art classes. He knew he wanted to be an artist.

Rivera worked hard and did well in his classes. He also studied with a local Mexican artist. After taking art classes, Rivera sold some of his paintings. He used that money to travel to Europe, where he studied and worked.

After living in Europe, Rivera returned to Mexico. There, he painted large murals showing Mexican life and events in Mexican history. His art revealed his political beliefs, which disturbed some people. In time, people around the world began to hear about Rivera's art.

Rivera then came to the United States, where he painted murals showing the life of industry. Some of his most famous U.S. pieces may be *Detroit Industry*, a collection of 27 murals at the Detroit Institute of Art.

An Amazing View

Now that the trip was almost over and their cooler was empty, Aito and his family were anxious to get out of the car. When they pulled up to a lookout point at the Grand Canyon, they got out to stretch their legs. No one could have prepared Aito and his family for what lay before them. The Grand Canyon was enormous! It seemed to reach the horizon.

Aito was staring into the vast distance before him. Something dark, like a small airplane, appeared in the sky. As it got closer, Aito realized the object was actually a bird! "What kind of bird is that, Dad?" he asked pointing upward.

"That's a California condor," Aito's dad said. "It's the largest land bird in all of North America. Condors are endangered and extremely rare. We're lucky to see one. This is a protected area, so animals are safer here."

As the bird flew closer, Aito saw its long, graceful wings. "That's the biggest bird I've ever seen!" he said with amazement.

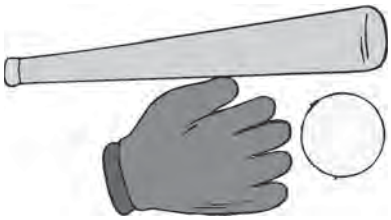
California Condors

The California condor is in the vulture family. It is the largest land bird in North America and also the rarest bird of prey in the world.

By 1987, only 22 condors remained alive. To boost the bird's population, a captive breeding program began. But breeding condors was hard work. Scientists removed freshly laid eggs, causing some parents to lay a second or even third egg. Scientists protected the eggs, keeping them warm until the chicks hatched. Parents raised some of the chicks. Scientists raised the others. To be sure the young chicks didn't begin to think of humans as their parents, the scientists used puppets that looked like adult condors to feed the young. Once the young were able to fly, some were released into the wild.

Captive breeding programs continue. However, the California condor remains endangered. Scientists are working to protect areas in California and Arizona, where these birds live in the wild. By protecting these areas, scientists hope the condor population will continue to grow.

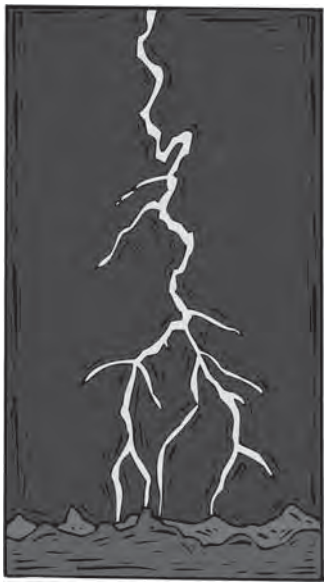
The Softball Storm



Kirsten was up to bat. Her team was down by one run. If ever she needed a home run, it was now. She was almost at the plate when the umpire told everyone to leave the field. At first, Kirsten wasn't sure why. But as she moved toward the school with her teammates, she heard the rumble of thunder.

"Looks like this game is over," Kirsten's coach said. Kirsten was so disappointed. A few minutes more could have made a big difference. Seconds before Kirsten asked her coach if they could go back out onto the field, rain began to drum on the roof. Large, black clouds cast a dark shadow over the softball field. The gym shook with each boom of thunder. Lightning flashed bright white outside, lighting the darkness. Rain poured in sheets down the windows. Kirsten said nothing. Instead, she grabbed her favorite mitt and huddled in the hallway with the rest of her team until the storm ended.

Thunderstorms



If you've seen lightning and heard the crack of thunder, you've been in a thunderstorm. Thunderstorms can happen almost anywhere. They usually don't last long, but they are powerful.

There are three main ingredients for a thunderstorm. First, there must be moisture in the air for clouds to form. Second, the air needs to be unstable. Unstable air is warm air that is rising above cooler air. The third ingredient is something that helps lift the unstable air, such as wind or mountains.

Thunderstorms usually happen in the spring and summer when the weather is warmer. The moisture from the clouds falls as heavy rain or hail. Lightning, or discharges of electrical energy, occurs within clouds or between clouds and the ground. The air along the pathway the lightning follows gets extremely hot. The air expands suddenly, and the shock waves are heard as thunder. There are different kinds of lightning, and each is extremely dangerous. If you know a thunderstorm is approaching, always take shelter inside.

Surprise at the Farm

Minh's class was on its way to a farm, where Minh imagined he would see cows, pigs, goats, and sheep. But once they arrived, Minh couldn't believe his eyes. All he could see were turkeys everywhere!

"Welcome to a turkey farm," Minh's teacher said. "Thanksgiving is coming soon, and turkeys are an American tradition."

A guide led the class through the farm. She explained that domesticated turkeys came from the native people of Mexico, who caught and raised wild turkeys long ago. Male turkeys, she said, are called toms, females are called hens, and chicks are called poults. The guide explained that domestic turkeys have been bred to be larger and meatier. As a result, they have lost their ability to fly, walk normally, find food, and escape danger. The turkeys on this farm were heritage turkeys, or the kinds of turkeys that small farm owners used to raise. The birds are strong flyers, can find their own food, and can take care of their own chicks. Plus, they resist disease naturally.

On the ride home, Minh thought about Thanksgiving. He thought he should learn more about turkeys before his family made their dinner plans.

Wild Turkeys

Wild turkeys are able fliers, reaching speeds of up to 50 miles per hour. Most wild turkeys live in forests, where they eat berries, insects, small reptiles, seeds, and nuts. At sunset, turkeys fly into trees where they roost, or spend the night. Adults have small, bluish and featherless heads. They have long, fan-shaped tails and thousands of feathers. Female turkeys are brown or gray. Male turkeys have feathers colored red, green, copper, bronze, and gold. They have beards, too, or feathers that stick out from the chest. Male turkeys, or gobblers, also have a fleshy bump on the head and a red wattle, or bag of skin, on the throat and neck.

Benjamin Franklin wrote that the wild turkey was a better symbol of America than the bald eagle. The turkey, Franklin wrote, was a true Native American. It was a brave bird, too, likely to attack any approaching Redcoat.