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K12Skills

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Newsletter
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A NEW CHAPTER



The Evolution of the Earth and Moon

By Devyani Suryawanshi

4,600 million years ago, the planets that we know today belong to the solar system were very different from their present state. In the beginning, the solar system was just an enormous cloud of gas and dust, known as a solar nebula. That solar nebula cloud was spinning at a fast pace. In the center, a clump grouped to form the mother star of the solar system, the sun.

Once the sun was completely formed, gas and dust were still left over, revolving around the sun at a steady pace. Clumps came together and collided, and combined. Some of them grew to be planets such as the Earth.

4,500 years ago, Earth was not the same as the home we live in and love today. It was full of chaos: a burning ball of magma continuously changing.

During the Earth's terraforming, it had three stages of its life. The first stage was where the Earth was a clump of gas, dust, rock, and ice that became a planet through accretion. Many years later, a Mars-sized planet, Theia, collided with Earth. That collision was predicted as the cause of the Moon's formation. Once the Moon had split apart from Earth, many asteroids that contained water bombarded Earth, and some of that water was kept on Earth. Later, a "blanket of gas" formed around the planet, which was known as the atmosphere, but there was still no oxygen.

As Earth changed over time, volcanoes erupted and emitted other gases, as well as carbon dioxide and water. Gradually, oceans formed and life sparked in those bodies of water. About 3 billion years ago, bacteria formed, and those bacteria used photosynthesis. They breathed the carbon dioxide from the volcanoes and released oxygen into the atmosphere. Today, 20% of the atmosphere is oxygen, which remains an essential component for all life on Earth.

When Earth was known as proto-earth and was going through its early stages, a Mars-sized planet named Theia hit Earth. During that catastrophic event, burning hot magma spewed out from the inside and into outer space. Some of that magma clumped together and formed into a ball made of lava about a quarter of the size of Earth. As the lava hardened into rock, the Moon was bombarded with asteroids, forming the craters we know today that decorate the Moon and facilitate space missions that continue to propel discovery into space.



IMAGE CREDITS: CANVA AND ARTIST'S IMPRESSION OF THEIA COLLIDING WITH THE EARTH BILLIONS OF YEARS AGO. HERNÁN CAÑELLAS

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The Brain And Its Functions

By Vihaan Rathi

Have you ever wondered how you think or why you move? The brain is a complex organ that regulates thoughts, behavior, memories, movement, and vision. The brain comprises many parts, each with its own function. These parts may have different functions, but they work very closely together to make up the central nervous system.

The brain is made up of many cells called neurons, which are nerve cells that carry out messages through signals. These signals then travel through the nervous system, which is how the brain communicates with the rest of the body. The brain is split into different parts. One of the sections, the largest one, is responsible for thinking, memory, movement, and logical problem solving. This is called the cerebrum, which is also split into two sections. The left side controls logic and language. The right side is accountable for creativity and imagination. Beneath the cerebrum is the cerebellum, which controls coordination, balance, and flexibility skills. At the foundation of the brain is the brainstem, which is the intersection between the brain and the spinal cord. The brainstem is responsible for controlling functions that occur naturally, such as the heart beating or breathing. It also keeps us aware of the environment around us. The central nervous system is a communication network connecting the brain to every part of the body. The spinal cord carries messages between the brain and the nerves in our limbs and organs. When we decide to move, the brain sends a signal through the spinal cord and the nerves, explaining to our muscles what to do. The nervous system also carries messages from our senses back to the brain.

The brain controls emotions, behavior, and memory through the limbic system. The main functions of the limbic system include processing emotions, behaviors, motivations, and memory. The limbic system controls how you respond or react to certain situations. It also controls your hunger and thirst. It is located deep within the brain and looks like a closed fist. The word “limbic” comes from the Latin word “limbus,” which means “border.” This refers to the location of the structures that are on the border above your brainstem and under the cerebral cortex. The cerebral cortex is the outer layer of the top of your brain.

Since the brain controls every part of our body, taking care of it is very important. Eating nutritious foods, getting plenty of sleep, exercising your body, and challenging your brain. Sleep is important because it allows the brain to rest, store memories, and repair itself from a long day. Exercise increases the rate of blood flow, allowing the brain to focus on tasks more. It also improves overall brain function.

Challenging the brain, like learning a skill, can help the brain stay active. Avoiding injuries is also essential. Brain damage can have serious effects on movement, memory, and thinking. For example, wearing a helmet while biking can help prevent and protect the brain from harm. Scientists continue to study the brain and explore solutions to treat brain-related diseases. Understanding the brain can help us better take care of it, which can allow us to think clearly, live a healthy life, and make good decisions.

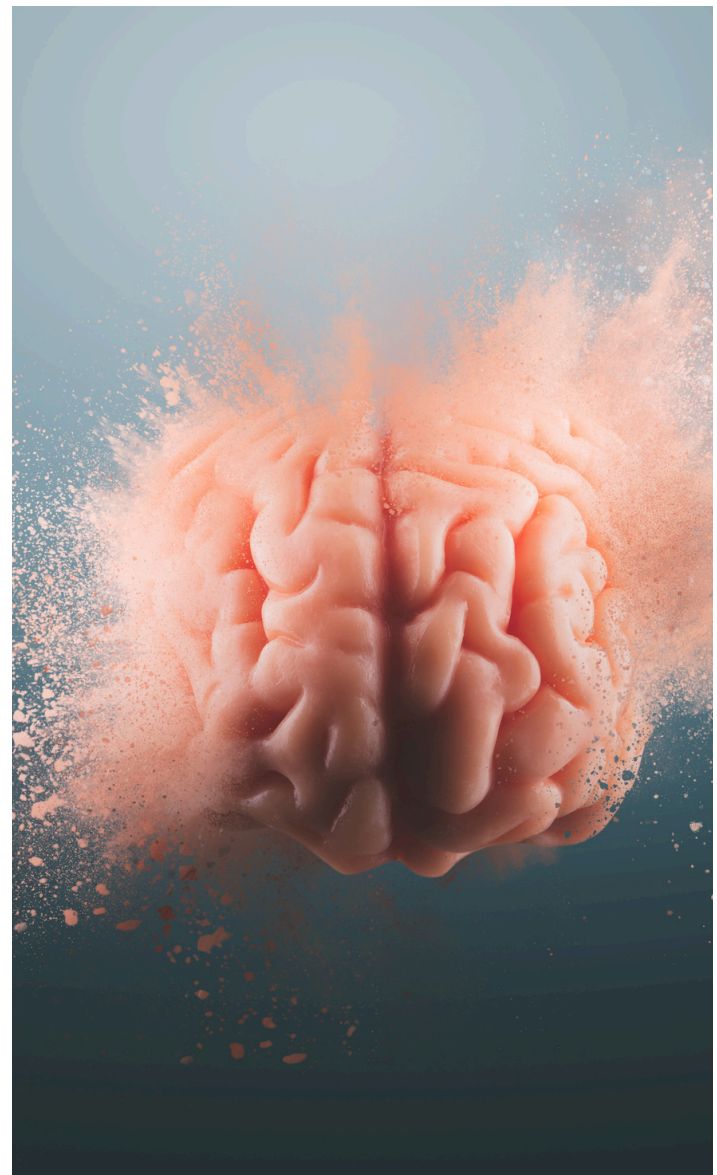


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Vantara: A Place of Rehabilitation and Rescue

By: Siddharth Kaparthy

Anant Ambani's Vantara is a place of hope and safety for rescued animals. Vantara is an animal rescue center that is located in Jamnagar, Gujarat, India. This dream project was established in February 2024, and the total amount of land was around 3,000 acres. Vantara consists of over 2,000 animals in 43 species, including elephants, leopards, tigers, lions, crocodiles, reptiles, fish, and more. Centers are built for each type of animal, and each animal has an excellent caretaker and good healthcare.

The Elephant Rescue Center is a center that is dedicated to the rehabilitation of rescued elephants. Complete with many facilities such as a hospital and even the world's first temperature-controlled jacuzzi. A hydrotherapy pool is in place for the elephants, many of which are arthritic, having come from conditions in which they were harmed and exploited (logging, riding, and entertainment purposes). The elephants at Vantara are given hot water massages and even manicures.

Complete with a wide array of properties, a 2000-acre private forest was created for the elephants to enjoy. The hospital at this center has X-ray machines, laser therapy machines, a pathology lab, a hyperbaric oxygen chamber, and even the world's largest hydraulic lift, which is used to do surgery on an elephant. In addition, state-of-the-art medical equipment is placed for the elephants to live without any troubles.

Leopards have been transported from regions where human-leopard conflicts are common to protect both leopards and animals. The leopards have been calmed and rehabilitated so much that even a famous man-eating leopard, though still ferocious overall, has grown to become more friendly to people. They seek refuge in a center designed to resemble the leopard's natural habitat. This habitat has helped the leopard to use their natural behaviors even in a controlled environment. Vantara has teamed up with the International Union for Conservation of Nature (IUCN) and also with the World Wildlife Fund (WWF) to improve their conservation efforts.

Overall, Vantara has been a paradise for animals, no matter what species they are. Centers that are specially designed for each animal's needs and habitat have helped the animals to thrive in a one-of-a-kind animal rescue center that has saved many lives. From rehabilitating animals to keeping them healthy, Vantara uses advanced facilities to help fulfill its mission. Each animal is given their own dedicated caretaker, who cares deeply for their given animal, whether it is a calm elephant or a volatile leopard. The animal develops a bond with their caretaker so it will have an even better life. Even though this expensive, conservative effort is private, the animals are happy and taken care of. This conservation initiative will remain a milestone in animal welfare, helping inspire more animal rescue centers around the world.

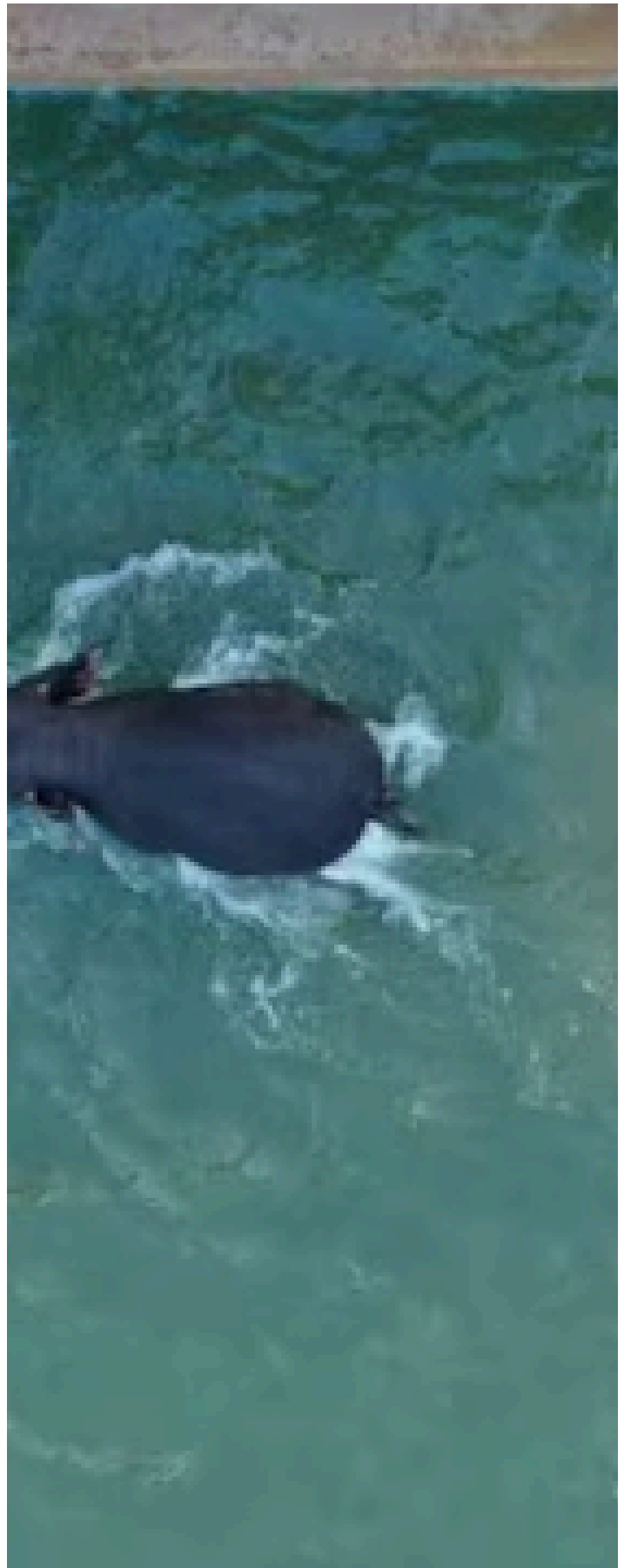


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Creative Pieces



Poem- Dying Hope

By Anagha S.

Dying Hope

Our voices are never heard
Always oppressed.
Our dreams are dying,
Not thriving.

We all come from different backgrounds,
Yet we all have common grounds.
We all hoped for freedom,
But it has never been America's custom.

Our hope is like a delicate flower,
Withering and dying by the hour.
We were told we cannot fly,
They said the sky was too high.

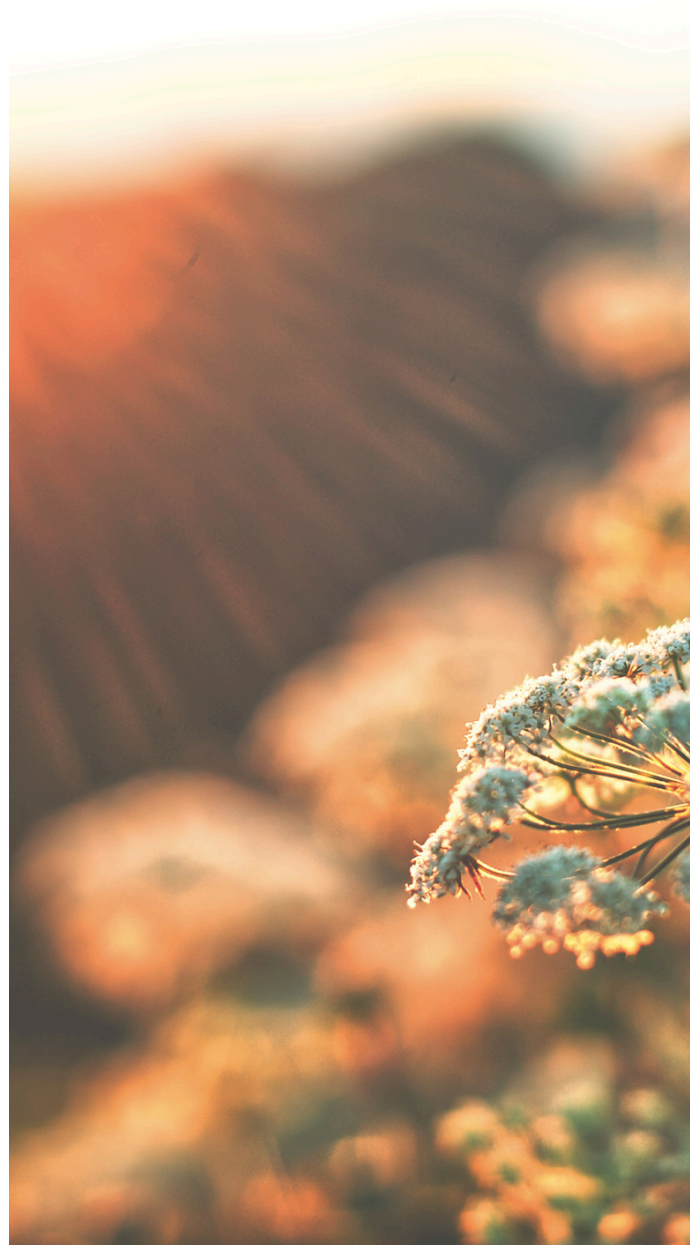
We immigrants are like herons,
Flying over plains that have long ago gone barren.
For a better future, we have been wishing,
But our voices have seemingly gone missing.

Was this the country our Founding Fathers imagined?
Where the power's iron fists have hardened?
The thought of liberty for all
seems like an empty promise echoing through uncaring halls.

Each time we stand honoring those who fell,
Those who fought to hear liberty's bell.
The sun doesn't shine for us,
Yet it shines for citizens, always will and has.

We immigrants just want to be heard and appreciated,
But it just does not seem fated.
We want equal treatment,
Which was not given to those who lived in tenements.

We want to be able to hold our heads up high,
As high as the bald eagle soars through the blue sky.
We want equal rights and treatment for all, but
It seems that we will always be referred to as "the people who came from a hut."



Living on the Edge: A story about hope and love

By Anika Chatha

I vividly remember the days when I lived in danger every day, when we were close to extinction, and when my story started. I sat in the lovely warmth of the hollow tree, but I still shivered...with fear. Even though the grass bedding was soft and welcoming, I still felt scared. With everything happening, my mind was adrift. I could only think about how good my life was before it all happened.

As a young pup, I had a mostly black body that resembled a baby wolf. I did have some brown, but not as much as the adults. The adults were brown with black spots and big ears with a fluffy tail. I looked the same, but smaller. I remember I was the wrestling champ, always the first to make the other opponent surrender.

However, my fondest memory is of my mom. She was caring, loving, fun, and very wise. She would tell me about the stars or stories at night while we sat in the savannah. Mom played with me, taught me how to hunt, and watched me play with others during the day. Whenever I was scared, she would assure me and cuddle me until I calmed down.

For example, when a small, but harmful, spider chased me in the Namib desert, my mother ran up to me, picked me up, and charged at full speed in the other direction. I remember smelling the sand that tracked behind us because of my mother's robust legs and seeing the earth turn at her command. It seemed like she was always there for me.

She would do anything for me, I thought now, feeling sentimental, remembering all the memories of us together. This time, my mother wasn't there to protect me. This time, she wasn't there to help me and calm me down. This time, I was all alone.

Our pack had noticed the danger. The humans with large bulldozers were here and were taking down the savannah. Within weeks or months, I saw the dry land become more barren and soulless, as one by one, the trees fell. My beautiful and peaceful home was being destroyed right before my eyes. Our population rapidly decreased as it got closer and closer by the minute.

My mom had picked me up with her strong jaws and ran faster than I'd ever seen her run before. Her eyes were full of fear, something I'd never seen in her eyes before. She swiftly tucked me into a big hollow oak tree, hidden by a patch of grass.

"Stay strong, Simra, and remember me. Never forget that I will always be with you among the stars." Mom whispered.

"Don't go; stay in here with me," I cried out frantically

But my mother gave me a lick and left. I didn't know what happened to her, but I felt the sweep of cold air and watched as the sun went to sleep. Engulfed by the black night, I dug into the leaves and prepared for sleep, my mother's voice echoing in my head.

When sunlight came in and the savannah seemed to awaken, I had forgotten what happened and was panicking, but then it all came back to me. I whimpered, not wanting to think what I was thinking: where was my mom? What if she were gone forever?

Stepping out of the tree, I let the sun's warmth rain down on me. Looking around, I saw Karma, my very best friend. In shock, I had believed that all of our pack had disappeared or run away. Maybe Mom was with them, or they knew where she was. I leaped onto Karma, and she first looked at me in disbelief, then tumbled down to the ground.

"Simra, I didn't know where you or your mom were." She barked. "Oh..." I responded sadly, realization creeping into me

Karma's parents had also left her in a safe hole that had been built, but her parents were taken away. Even though I knew Mom might be gone, I felt a little spark of hope in me. That spark spread from my heart to my bones, telling me that my amazing mother was still there.

"Come on, Karma, we'll find our moms in no time!" I barked, getting up. Karma followed as we started our voyage to where the humans lived.

The destruction was worse than I thought. Ashes and broken sticks poked at my paws like spears covering the ground. I whined in pain, suddenly wishing for my mother's support. What I saw was worse. However, trees had fallen, and the fire roared. They were only little flames, but alarmingly growing bigger and stronger.

"Karma, watch out!" I shouted before a tree came crashing down. "Thanks, Simra. That tree almost crushed me!" Karma replied in shock.

The tree had fallen only a few inches away from Karma, but if I hadn't seen it falling, then she might not have survived. At that moment, I imagined what would have happened if I hadn't seen it. I would have one less friend, one less partner. Karma inched towards me, cuddling in with me. Suddenly, we heard a stick crack and saw our biggest fear chasing behind us.



"Run, Karma! It's coming closer!" I barked when I started a fast sprint. My head swiveled at the sound of the whine, and I saw the most horrid scene: Karma, locked in a black cage, carried by a human man! He wore a tan, full-sleeve shirt and pants that were dusty with ash. His face was partially covered with a cloth of some sort, and he had a determined expression.

No, Karma, I've got to get you back, I thought. I didn't even have enough time to recover from the shock as the human was coming after me! The heavy footsteps ran faster and faster. My paws grew tired, and my energy was draining out when I tripped on a sharp twig. Falling to the ground, I felt a sharp pain in my paw. I peeked at it, too tired to get up. Blood was oozing out, and the twig was still stuck on my leg. I tried to get up, failing, when I felt the cage enclose around me.

No, no, this can't be happening. Wait, what? I thought as the human gave me a concerned look, and a nice and gentle, loving pat. He slowly brought me back to Karma, and I could feel that he meant well. Then, he set me on a table and slowly took the twig out. I whined in pain, but once it was out, I felt a little bit of relief. This human wasn't going to capture me and take me away; he was going to help me.

"I am Carlos. I am only trying to help you and I mean no harm," the man reassured me. He bandaged my wound and put me alongside Karma in the dark. We started to move, and I looked at a clear thing that showed us outside, but it didn't let us out.

"Are you okay?" Karma asked me.

"I think so, but not if Carlos hadn't saved me," I told her.

"Who's Carlos?" Karma wondered.

Then I told her the whole story, how he picked me up and took the twig out of my leg. We were still chatting when the truck pulled into the center with a sign reading something in a different language.

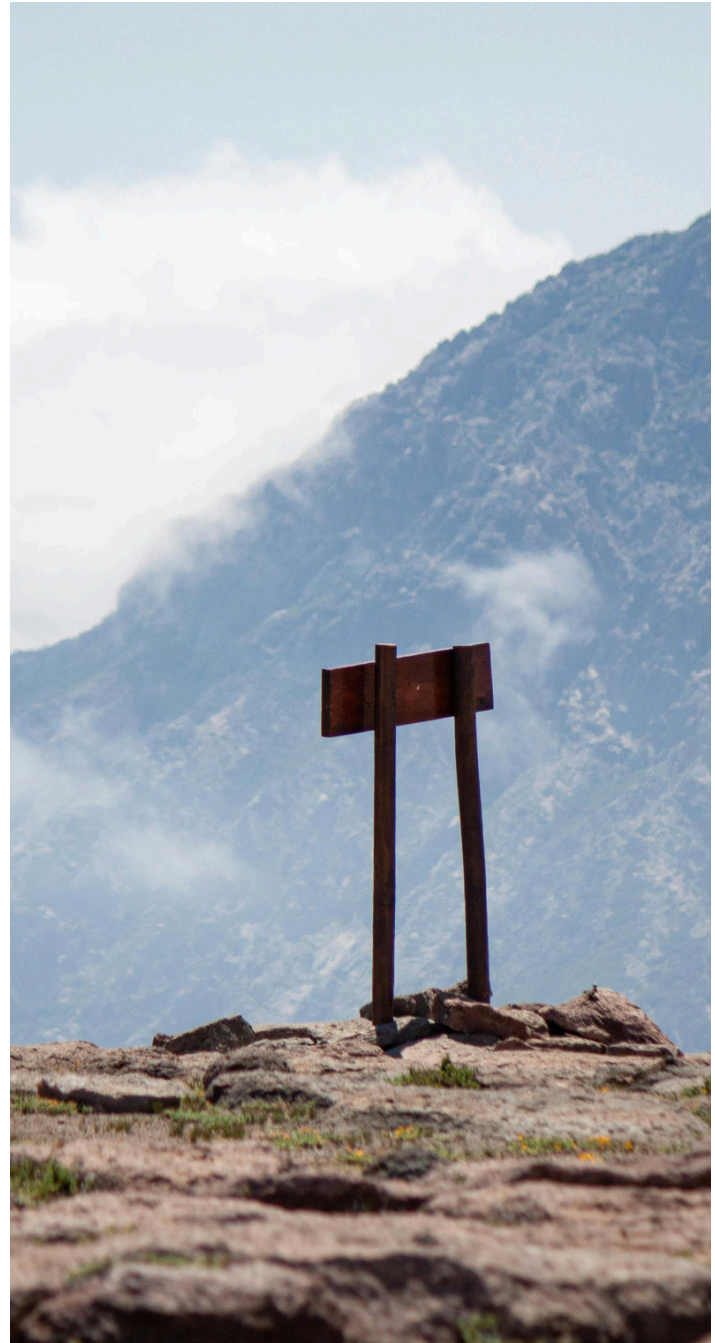
Once we were out of the dark place, Carlos took us into a bright white room and handed us over to a woman who looked very loving and kind.

"I'm Dr. Phoebe, and I'm going to introduce you to your new home, an enclosed environment close to your home," Phoebe informed us.

A hidden doorway opened up and revealed a savannah-like place with grass and trees, and our kind. We were ecstatic. Karma and I bolted out and were welcomed by numerous African Wild Dogs. Our family. Our home.

I heard a familiar bark and rushed towards it. There she was, the one who I needed, my mother. I leaped onto her, and she snuggled me like never before. I held on to her tightly, never wanting to let her go out of my sight. I was safe again. I was with my mom!

Today, years after I first arrived at the conservation center, I proudly stand with Karma. We are ready to be free! Thanks to Carlos and Phoebe, the African Wild Dogs made a big comeback and are no longer endangered! We can now leave the center without fear of losing our habitat again and live a happy life.



Mansion Mission

By Tanvi Naik

As the sun sank over the horizon, the pitch-black night shadowed over Pennywater Street. Jasmine and Mira exchanged anxious glances. The previous day, all the kids on the block were chattering about a valuable rock hidden in the basement of an abandoned mansion nearby. Whether it was a myth or fact, a band of three friends, Jasmine, Mira, and Peter, were determined to find out. However, after standing below the towering mansion, they felt an unsettling feeling in their stomachs.

"You know," Mira said uneasily. "I think we should head back home. It's getting dark anyhow."

"No way!" Peter exclaimed. "If we don't go, we'll never know what treasure is hiding in there!"

Jasmine looked at her friends, not sure who to agree with. She was always up for adventure, but the thought of tiptoeing through an ancient house was horrifying.

An awkward silence settled between them while crickets chirped faintly in the grass below.

"Okay, if you two don't want to come, I'll just get going," Peter said impatiently.

Just as he was about to set off, Mira caught his arm.

"Fine, I'll come," she sighed.

A wide grin spread across Peter's face. He knew that Mira didn't like to miss out on adventures, especially ones with possible treasure.

"Are you coming, too?" he asked Jasmine.

After a moment's consideration, Jasmine reluctantly gave him a slight nod.

"Well then, let's go!"

The wind howled violently, rattling the mansion's windows. A chill ran down Jasmine's spine as she followed Peter and Mira into the creaky building. Spider webs decorated the walls, where dusty portraits of people lined the rooms.

"I still think this was a bad idea," Mira whispered.

Peter scoffed. "Relax, Mira. It's just an old house."

Jasmine stepped closer to the portraits and observed them. The people all wore identical camouflage clothing, and none of them seemed to smile. As she skimmed through each of the photos, they seemed to be less modern-looking and dustier. "Connor Hillinburg" was inscribed on one of them. The floorboards groaned under the weight of the friends, and it felt as if they could collapse at any second.

Suddenly, a gush of air swooped past them, leaving the trio shivering.

"Did anyone else feel that?" Mira whispered, terrified.

Just as Jasmine was about to reply, a hoarse voice echoed through the silent house.

"

Welcome, welcome, welcome." It said.

Mira screamed in terror, unable to control her fear.

As Jasmine adjusted her eyes, she could see a translucent figure staring down with its glowing green eyes.

"A ghost!" Peter gaped, taking a few steps back.

"Indeed," the ghost replied. "I mean no harm. My name is Connor Hillinburg."

"Connor Hillinburg?" Jasmine asked curiously. "That name sounds familiar."

She turned around and squinted at the wall behind her.

"There!" she exclaimed, pointing at a tall man with brown hair.

"Ah, yes, that'll be me. I remember those good days," the ghost replied dreamily. "Anyhow, what brings you three here? Most people seem too scared to come inside."

"We were told that there was treasure in this house," Peter explained. "Is there any?"

Connor smiled. "Indeed, there is. The treasure of knowledge and the secrets therein are hidden in this mansion."

Connor led the three friends through a dark, winding hallway.

The air became colder the farther into the corridor they went.

Finally, the group reached a large, circular room. In the center was a marble pedestal with a glowing sapphire rock sitting on top.

"This is the heart of the mansion. I believe that you three have earned the power of the stone. Remember to always be careful and protect it from harm."

Suddenly, the rock split into three small rocks. Connor gave each of the friends a black beaded necklace, and the rocks connected to them.

"Whoa!" Mira breathed, astonished.

"Mira," Peter said warily. "Where's Jasmine?"

Jasmine looked at them in confusion. "I'm right in front of you. Can't you see me?"

"The power of invisibility. That's a rare one," Connor said, grinning in delight.

"You mean, we all get powers?" Jasmine asked, unable to control her excitement.

Before Connor could reply, Peter interrupted him.

"Check this out!" he yelled enthusiastically. Peter bent down and lifted the marble pedestal like it was a feather.

"No way!" Mira said.

All of a sudden, items around the room started to move.

"Like I said, be careful. Don't let the rock get into the wrong hands," Connor warned.

He gave them a quick wink and vanished in the blink of an eye.

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