

THE CLOUD AND THE RAINDROPS

*Cloud formation, rain, weather
phenomena, importance to life on
Earth.*

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Children's story that integrates with the natural fantasy and creativity of children and young people, entertaining, educating and adding to the development of character, moral values, citizenship, ecological awareness, family values, culture, knowledge, spirituality, respect for educators, encouragement to study, order and discipline. This book is for children and young people who enjoy intelligent, sensitive, cultural, educational readings and themes of social reality. It is a book with largest literary content, a better reading exercise.

Synopsis:

The book tells the story of a cloud, from its formation as a small cotton wad to the size and accumulation of water vapor that favors rain precipitation. It simply and objectively explains the phenomenon of cloud formation, the process of evaporation and condensation of water, rain, hurricane and storm formation, fog, drizzle, dew, frost, snow, hail and the phenomena of the rainbow, lightning and thunderbolt. To the greatest interest of child readers, the cloud was called the mother cloud and its children raindrops. Back in the sky, raindrops related where they fell and what they saw on Earth, with lessons on the effects of rain on humans, animals and plants, environmental preservation, and knowledge of the importance of preserving water resources. It is a tale with an educational character and development of knowledge, while engaging and delighting readers.

Dedication

I dedicate this work to all those who reserve part of their lives to educate children in some way, as a mission and a belief that in them is the hope of a better world.

In special to parents, teachers and grandparents, the basic triangle of early childhood education.

I thank God for the child that He still allows to exist in me.

João José da Costa

It was a beautiful sunny summer morning.

The sky was clear and the sun very, very hot.

But in the distance a cloud appeared in the blue sky.

It was a small white cloud, like a cotton ball.

Gradually the cloud grew larger and had a light gray color.

Over the hours, the cloud grew larger and larger and became very dark gray. It looked a little threatening.

And slowly, it moved in the sky until it covered the sunlight.

The air began to cool off. The heat has subsided.

The cloud was like a mother of thousands of steam-shaped raindrops. And it was time for it to let its children, the raindrops, leave.

But the raindrops didn't want to fall. They felt good, sheltered by the mother cloud and living up high in the sky.

So, the raindrops asked the mother cloud:

“But, mom! Why do we need to fall? Can't we stay here by your side? It's so beautiful to see the valleys, the mountains, the sea from here!”.

And patiently the mother cloud replied:

“There is nothing I can do about it. I can't stay with you anymore! I am very full of so many drops of water in the form of steam! The air is very cold, and it will cause all of you to condense into water drops. You will have to leave”.

“Condensed? What does this mean, mom?”. asked the raindrops.

The mother cloud clarified:

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“It's the condensation process. It means that you will stop being water steam to become raindrops. This is due to the cooling of the water steam, which turns it into a liquid state”.

And the upset raindrops insisted:

"But, mother, where will we fall and what will be done to all of us?".

The mother cloud replied:

“Down there, there are many people, plants and animals waiting for you. Without you all these living beings could not survive!”.

“What do you mean, mom?”. The raindrops insisted.

And the mother cloud justified:

“Humans need your water to drink, bathe, wash the house, clothes, dishes and pans, and many other things. They use a lot of water! Plants need

water to penetrate the soil to water its roots. Otherwise, they would dry in the heat of the sun. And animals need water to drink and wash. The fish of rivers and seas would die without water!”.

Seeing that they had no alternative, the raindrops asked:

“But, mom! How will you be without us, you drop of water? Won't you miss us?”.

And resigned, the mother cloud answered:

“I must follow my mission in nature. I will simply disappear into the sky!”.

The raindrops were sad, and they hesitated to leave the mother cloud for a moment. But its mother cloud comforted them by saying,

“You have an important mission to accomplish! And one day we will meet again! And when this happens, I will be a little white cloud, like a cotton wad. Then I will be a slightly larger cloud,

light gray in color. And then I'll be a huge dark gray cloud again! And everything will start over. It has been like that for thousands of centuries!”.

And the raindrops asked:

"But how are we going to meet again, mom?".

And the mother cloud explained:

“It's the evaporation process. One day it will be sunny, you will warm up in the sun, turn into steam and soar into the sky. So together again we will form a big cloud and it will start all over again!”.

And suddenly a noise of thunder announced that the time had come for all the raindrops to fall!

And that afternoon it rained a lot.

The wind carried the mother cloud to many parts of the earth, wetting everything it passed like a giant sprinkler.

The raindrops were now due to luck and fate!

As they fell, they looked down and wondered where on Earth they would eventually fall.

As they looked up, they saw that gradually its mother cloud grew smaller and smaller until it completely disappeared when the rain stopped.

The raindrops were now on their own.

The time has passed...

And, as its mother cloud had predicted, raindrops found its way back into many groups, which grew by the day. The strong heat of the sun had evaporated them, that is, turned them into water vapor and they were rising to the sky.

At first, the raindrops, in the vapor state, formed a small cloud like a white cotton wad.

With the arrival of many others, they formed a larger cloud, light gray in color.

After a few more days, other vaporized raindrops came together and found each other again. The mother cloud was once again turning into a very large cloud, dark gray in color.

And the mother cloud wanted to know from everyone what the trip to Earth was like and what the raindrops saw and did. It wanted to know how everyone accomplished their important mission.

Then it heard the following reports of raindrops, which all spoke at once leaving the mother cloud a little dazed:

“We fall into a beautiful forest, refresh all plants and animals, penetrate the earth, and form beautiful fountains of water”.

"Then we head for streams and rivers until we reach the sea!".

“We fell into several crops that were missing water. We watered men's crop fields. The plants looked cheerful and grateful”.

"Then we disappeared into the wet earth and were trapped in a large pool of water underground. And we only got out of there when humans drilled wells that they call handmaid wells".

"But many drops of water remained there in the well underground!".

"We fall into open fields, water all the vegetation, run into the rivers and get stuck in a big dam".

"We heard that this dam supplies water for human use!".

"We fell over a big city. But unfortunately, we brought many problems for humans. We did not find forest or land to penetrate".

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"We ended up causing floods that invaded homes, industries, shops, parks and various places used by humans".

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“We cause a lot of problem and damage. But, mom, it wasn't our fault. It was all paved and with sidewalks! There were very few plants and land. Unable to penetrate the earth we have accumulated in a flood!”.

“It is true! Almost the same thing happened to us. We fell concentrated in one area and caused the rivers to overflow”.

“I learned that in the old days the riverbanks were free and had many trees. So, when the rivers overflowed, they filled the empty land with excess rainwater, causing no harm to anyone”.

"But now, mother, humans have made houses by the riverside, occupying the land that used to be for river flows".

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“We are sorry for humans, but we were not to blame either!”.

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"For our part, mother, we fell into the sea! We found it strange to rain in the sea with so many dry lands! But the wind took us there!"

"We couldn't be very helpful falling into the sea. But it is the forces of nature that command us!"

"And we, mother, were so sad that we couldn't fall in places where it hadn't been raining in months. It was all dry and dust was everywhere".

"The plants were dry; the cattle and other animals of humans were starving and thirsty. We ended up falling into a huge forest where we found many other clouds".

"In this huge forest it rains almost every day. It is said to be because of the abundance of trees in the forest and that these trees help to form and maintain rainfall".

"But if it were up to us, we would have watered the dry wilderness we found and brought relief to the humans and animals that live there!"

"Men shouldn't cut trees! Shouldn't they, mother?"

"It's true, mom! Human beings should also plant trees in every corner of the Earth!"

"We fell into a huge desert. Only cacti live there and a few plants that have learned to live with very little water".

"The desert is so dry and hot, Mom! As soon as we fell, we disappeared into the hot dry sand and turned into water vapor right after and climbed into the sky as if we were little ghosts!"

"But something happened a few days later in that desert, mother. Cacti and plants that live there filled with life and flowers, making the most of the water we offer that afternoon".

"It was a very beautiful show. I am told that these plants store water in its trunks and roots, waiting for the next rain, which will take a long time to fall back into the desert".

“We fall into the right place at the right time! A large fire was destroying all the vegetation of a large nature park. The flames frightened many animals that ran searching for rescue. Others, mother, unfortunately, died burned. When we fell the fire went out. We were very happy. The ground was so hot and with many ashes of the destroyed trees that, as soon as we fell, we became water vapor and returned to the sky!”.

“We fall high in the mountains, watering the plants and giving water to the animals that live there. Then we follow small streams, which formed rivers, that formed large and beautiful waterfalls, mother”.

“It was a lot of fun to fall high in the mountains and roll down land at top speed. It looked like a roller coaster of humans”.

“Mom, the same thing happened to us. But some parts of the mountain could not stand the weight of the water and collapsed. Everything was fine until, at some point on the mountain, there

were houses built by humans in dangerous places”.

“And, unfortunately, many houses collapsed under the weight of land and fallen trees. We learned that there were even humans who died. We were very sad”.

"Human beings should not build their houses on the slopes of the mountains where landslides can occur, shouldn't they?"

“With us, mother, something very strange happened. We started to fall. But suddenly, we went through very cold air and low temperatures”.

"And instead of falling like raindrops, we fall like cold cotton flakes. Humans called us snow!"

"And in some places, we even fall like ice stones. We became ice stones, some very large and heavy! Humans called us hail!"

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“Humans found the snow very beautiful. And they even made dolls with us! But the hail, mother, has done great damage to the crops and roofs of human homes”.

“They were very upset with us! But it was all the fault of the freezing wind that forced us to pass it!”.

“It was worse with us, mom! As we began to fall, a struggle began between hot air and cold air. And this fight caused a powerful wind to form. The wind formed a giant whirlwind that enveloped us. The whirlpool triggered a funnel that smashed everything in front of it including human homes. Everything was flying in the air. It was very scary! There was much damage everywhere it passed. We wanted to break free from this whirlwind, but we couldn't! And humans called us by strange names like hurricane, tornado!”.

“Something similar happened to us. We were falling. The very strong wind pushed us violently

and caused a very heavy rain that flooded the places where we fell and felled trees, electricity poles, houses and many other things”.

“We wish we had had the luck of my brothers and fall into the gardens, the woods, the desert, the plantations of human beings in a quiet way. But our destiny was to form a rain so strong. What a pity!”.

“We did not get wet the soil, but we refresh the leaves of the plants!”.

“In one place, mother, the cold was so strong, so strong, that the dew we formed froze and covered the fields and plants with a thin layer of ice. Unfortunately, many plants have been destroyed by excess cold. Humans called us frost!”.

“Mother, as we were falling, we saw some low, thin clouds dropping very small water droplets, much smaller than us. They were so light that

they fell slowly. Humans, mother, called these our little friends drizzle, not rain!"

The mother cloud listened to its raindrops' reports intently but without surprise.

It had heard these reports many more times

"Mom, we had the best of luck! And we saw something wonderful, mom! As we fell on one part of the Earth, the other part shone a bright sun. Sun and rain at the same time!"

"And you know what happened? The sky was so pleased that a beautiful colored bow formed and delighted everyone who saw it!"

"We hear humans call it a rainbow! Mom, have you ever seen a rainbow?"

Smiling, the mother cloud replied:

"Yes, my dear raindrops. I've seen many!"

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(Have you ever seen a rainbow? yes? That's a good sign! Demonstrates that you don't stick all day in front of a computer screen and find time to look at the sky! But you know how a bow forms No, then sit down to pay attention to the teacher! A rainbow, also called the celestial arch, the covenant bow, the Rain, tic-tac-toe, is an optical and meteorological phenomenon, that is, something that happens by force of a lens and caused by the weather. Sunlight is formed by various colors. When this light passes through raindrops, which play the role of a large lens, sunlight splits into various colors. Thus, it forms a multicolored arch, predominating red on the outside and violet on the inside. The full order of the rainbow colors is red, orange, yellow, green, indigo, blue and violet. The effect of the rainbow can be observed when there are water droplets in the air and sunlight is shining at the same time. Another place to enjoy the rainbow is near waterfalls).

“Mom, we were very scared! As we fell, we saw that you looked very angry! And to show it, you

threw lightning bolts on the floor, which made a great noise!”.

"Some of them, mother, fell into trees, burning her all over. And, mom, I didn't mean that, but some of the lightnings struck humans and they, mom, burned to death!”.

The mother cloud thought it should explain this and said:

"Lightning is inevitable, my raindrops. I cannot control them! Humans must protect themselves from my rays by not being under trees and not walking in places not covered on rainy days when the rays are falling”.

“But, mom! Why do lightning happen? Explain to us!”. The raindrops said.

“It's a bit complicated to explain, but I'll try: Lightning is one of nature's most violent manifestations. A manifestation that, in a fraction of a second, can produce a very high and very

hot electric charge. As I grow as a cloud, I accumulate energy. And this happens with all the other clouds, too. My energy can have positive or negative pole. When we meet other clouds or the Earth, whenever these poles are opposite each other, that is, one pole is positive and another pole is negative, the rays happen. This can happen, too, as I approach the Earth. Thus, lightning can come from cloud to cloud, from cloud to Earth, and from Earth to cloud. Can you understand?”.

The raindrops answered:

“No mother! But it's alright. What matters is that you can't control this, and you don't do it because you want to!”.

And the raindrops continued its reports:

“When we were falling, we got scared we heard scary sounds in the sky!”.

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"And when we fell at night, we saw flashes in the sky!"

And the patient cloud mother explained:

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"You heard thunder and saw lightning! This can happen every time heavy clouds form in the sky!".

(Do you know how thunder and lightning form? I can guess you don't know! Then sit down to pay attention to the teacher: Thunder is a sound phenomenon generated by the movement of electric charges in the atmosphere. The sounds of thunder occur due to sudden warming, and the rapid expansion of air, thus producing a strong pressure that manifests itself through sound, called thunder. The sound of thunder always comes after lightning, which is the luminous part visible to the human eye. Lightning is the light emitted by the electric discharge, i.e. the lightning, between two clouds, or between a cloud and the ground. Lightning is produced during lightning-charged cloud storms,

when the electric field becomes so strong and intense as to force an electrical discharge between the cloud and the ground).

And finally, the mother cloud heard the last report of raindrops. And once again it was very worried. This account is repeating and increasing each year:

“Mom, we had the worst luck, or the worst fate! All of us were falling happy hoping to water plants and woods, provide water for humans and animals to drink, form waterfalls, lakes and fountains, cool desert plants, or quench the thirst for wild animals. But that's not what happened! We fell into a place full of trash, we were all dirty! Then we were taken to a very dirty and stinky stream. The water was so dirty and polluted that you could not see the bottom of the river where we ended up! We saw no fish, no frogs, no sign of life. The river was dead!”.

Very sad to hear these reports, the mother cloud said:

“Unfortunately, my dear raindrops, many human beings are not knowing how to value the pure, clear water we offer when it rains. They scatter their waste and sewage, polluting rivers, lakes and seas. So, you get contaminated, too. But nature is so wise that as you evaporate, you leave all this pollution behind and soar into the sky, clean. And, with every rain, Nature offers humans a new opportunity to give water the proper value!”.

The mother cloud fell silent sadly.

The days passed.

The mother cloud became very full again with so many drops of water! And the air was getting very cold and it will make all the water in the steam state to be condensed and become water droplets.

The raindrops will have to go again.

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And suddenly a sound of thunder announced that the time had come for all the raindrops to begin to fall.

And that afternoon it rained a lot.

The wind carried the mother cloud to many parts of the earth, wetting everything it passed like a giant watering sprinkler.

But this time the wind blew the mother cloud into the backcountry and it rained a lot.

It seems that God heard the prayers of the people who lived in the outback of the countries who asked for rain to wet the dry field so punished by a long drought.

So, as the cloud began to move away from the countryside, a very strong wind caused the cloud to take another course into its direction.

And that afternoon it rained a lot throughout the countryside.

Birds bathed in raindrops, plants were watered, cattle and all other animals refreshed.

The country people took the opportunity to fill their water reservoirs. Now full, they will have water for many months.

The dry land became wet, the plants were reborn, the pastures turned into a green carpet with lots of grass and plants.

And cattle, goats, and other animals could eat a lot, leaving thinness and misery behind.

Hope had returned to the suffering people who live in the countryside.

From above, the mother cloud was very happy and could see the joy with which its drops of water fell on the dry land of the countryside.

The end

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Weather Instruments

Weather instruments are devices used by atmospheric scientists to sample the state of the atmosphere, or what it's doing, at a given time. They're used in the field, placed outdoors as a suite of sensors which, together, provide a complete picture of weather conditions.

Anemometer: They are devices used to measure winds as wind speed and wind direction.

Barometer: It is a weather instrument used to measure air pressure.

Thermometer: They are one of the most widely recognized weather instruments, are tools used to measure ambient air temperature.

Hygrometer: It is a tool that measures humidity, or moisture content in the air.

Rain Gauge: It measures liquid precipitation.

Weather Balloon: It is a sort of mobile weather station in that it carries instruments into the upper air in able to record observations of weather variables (like atmospheric pressure, temperature, humidity, and winds).

Weather satellites: They are used to view and gather data about Earth's weather and climate. Meteorological satellites see clouds, wildfires, snow cover, and ocean temperatures.

Weather Radar: It is an essential weather instrument used to locate precipitation, calculate its motion, and estimate its type (rain, snow, or hail) and intensity (light or heavy).

In-Situ vs. Remote Sensing: Each of the above weather instruments uses either the in-situ or remote sensing method of measuring. In-situ measurements are those taken at the point of interest. Remote sensors collect data about the atmosphere from some distance away.

(Tip: If you were curious to know these instruments, search for their photos and other information on the Internet. It is by researching that one learns...).