



Read-Aloud Hanan Pacha

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People ask me, “Mia, why did you become an astronomer? After all, what do stars and planets have to do with the way we live here on Earth?”

Studying the sky helps us with a lot of things. In fact, a lot of the technology we have today like computers, cell phones, and GPS exist thanks to the work of my fellow astronomers.

But that’s actually not why I first got into astronomy. For me, my love of the night sky came from my grandfather—my Apucha.

 **Ask:** “What do you notice? What do you wonder?”

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When I was a kid, I used to stay with my Apucha during the summers in Pozo Almonte in Chile. He lived in a farmhouse out in the desert. For him, and the other campesinos—or farmers—their way of life depended on the night sky.

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They called it Hanan Pacha—“the world above”. The most important part of the world above was Mayu.

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Most astronomers today call it the Milky Way, but for thousands of years, people like my grandfather called it Mayu—the River in the Sky. As the seasons change, Mayu moves across Hanan Pacha. Depending on the time of year, different shapes would appear inside the River. Those shapes tell the farmers when to plant, and when the weather might change. All this, just by looking up!

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Apucha taught me how to read them all. There is Mach'acuay, the serpent who pokes their head in August to signal the beginning of the rainy season.

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Then there is the constellation of stars that make up an *arado*, or plow. Spotting it in the sky meant that it would be an excellent crop year.

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But the most important shape of all is Yana Llama, the black llama.

For the campesinos of the Atacama desert, the llama is a very special animal. The farmers depend on them for their wool, and they help carry heavy loads around the farm.

In December, you can see Yana Llama in the night sky. Two shining eyes appear right where the llama's head is. Those two stars are seen as a sign from Hanan Pacha that it's time for the farmers' llamas to have babies.

🗨️ **Ask:** "What do you notice? What do you wonder?"

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As an adult, I see the sky a little differently than I did when I was a kid.

I know now that stars are bright burning balls of gas; and the dark clouds that make up Yana Llama and Mach'acuay are bands of dust and gas.

But even so, when I'm studying these objects, tracking their movements using sophisticated pieces of equipment like satellites and high-powered telescopes, there's a part of me that goes back to my Apucha's house in the desert.

He showed me how big and mysterious and wonderful the night sky was.

🗨️ **Ask:** "What do you notice? What do you wonder?"

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I think of the other scientists. I think of the campesinos. I think of my Apucha—all of us, looking up, together.