



Sea Oats School

SCIENCE LESSON

The Story of Sand

and the

MAKING OF DUNES



Sand

Wind & Waves

Outer Banks, North Carolina

DUNE

Forward

This storybook was created by the Outer Banks Coastal Conservation (OBCC), a nonprofit organization whose mission is to foster environmental stewardship and a deeper connection to the Outer Banks of North Carolina through outreach, education, and conservation efforts.

We believe that small stories can spark big change. That is why we have made this book available as a free resource for parents, teachers, and community members.

All materials in this book may be freely downloaded, shared, printed and used for educational or nonprofit purposes.

To learn more, access additional resources at: www.thebcc.org.

The alarm clock *beep-beep-beeped* at 5:00 a.m., and Sandy, Scoot, and Shellby Dunehopper popped out of their burrows, ready for school.

They loved learning about their sandy home on the Outer Banks.





In the kitchen, Mama flipped warm seaweed pancakes onto a plate—Papa's favorite! Soon, the whole Dunehopper family gathered around the table.

Sandy wiggled with excitement.

"Today we have a guest speaker at Sea Oats School!" she said.

"Her name is Professor Sandstone, and she's a geologist. She's going to teach us where our sand comes from and how dunes are made!"

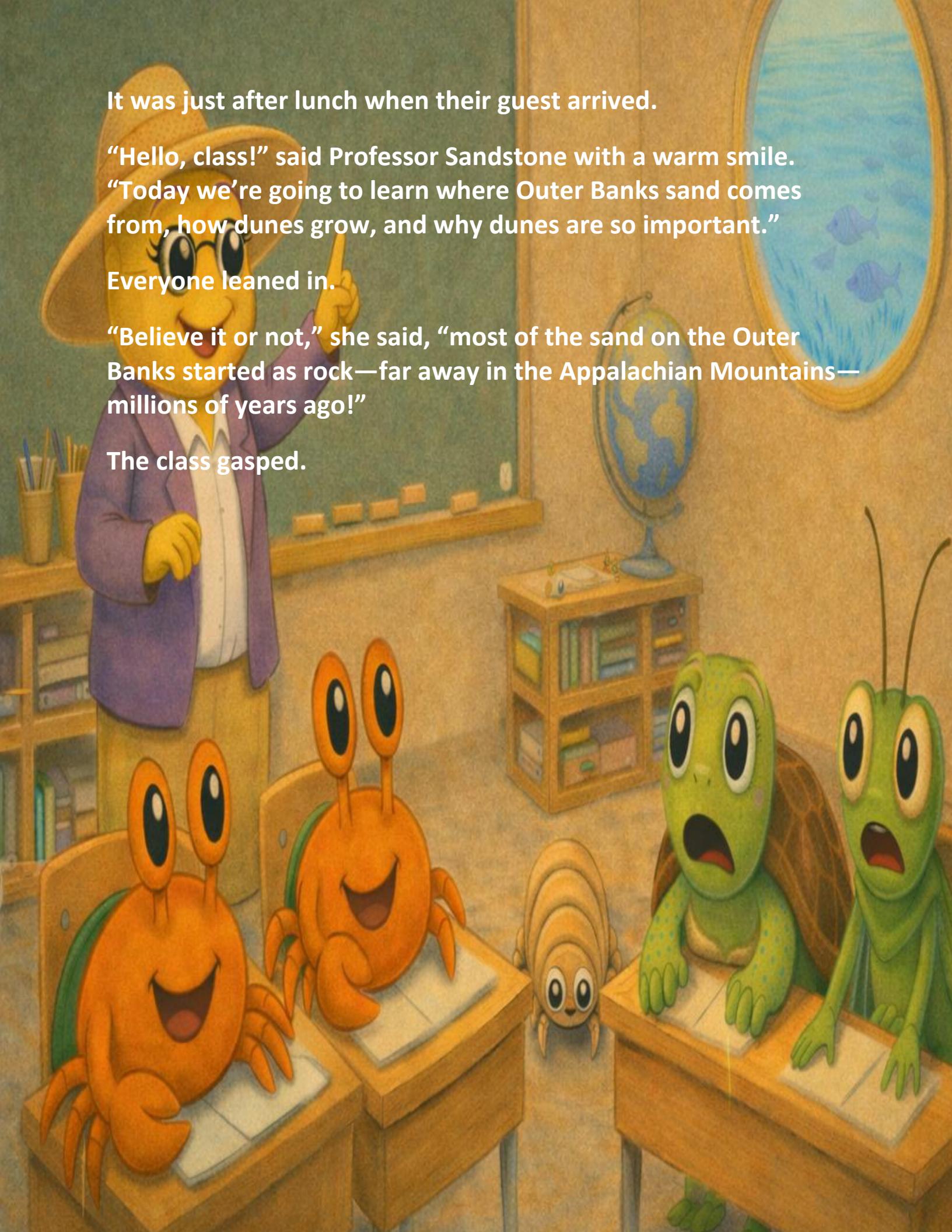
Papa smiled proudly.

"That's an important lesson," he said.

"Healthy sand dunes help protect our island—and they help ghost crabs like us survive."

After breakfast, Sandy, Scoot, and Shellby grabbed their napsacks and scuttled off to Sea Oats School, their claws clicking happily in the sand.





It was just after lunch when their guest arrived.

“Hello, class!” said Professor Sandstone with a warm smile.

“Today we’re going to learn where Outer Banks sand comes from, how dunes grow, and why dunes are so important.”

Everyone leaned in.

“Believe it or not,” she said, “most of the sand on the Outer Banks started as rock—far away in the Appalachian Mountains—millions of years ago!”

The class gasped.



"Rain and rivers slowly broke those rocks into tiny pieces and carried them all the way to the ocean," she explained.

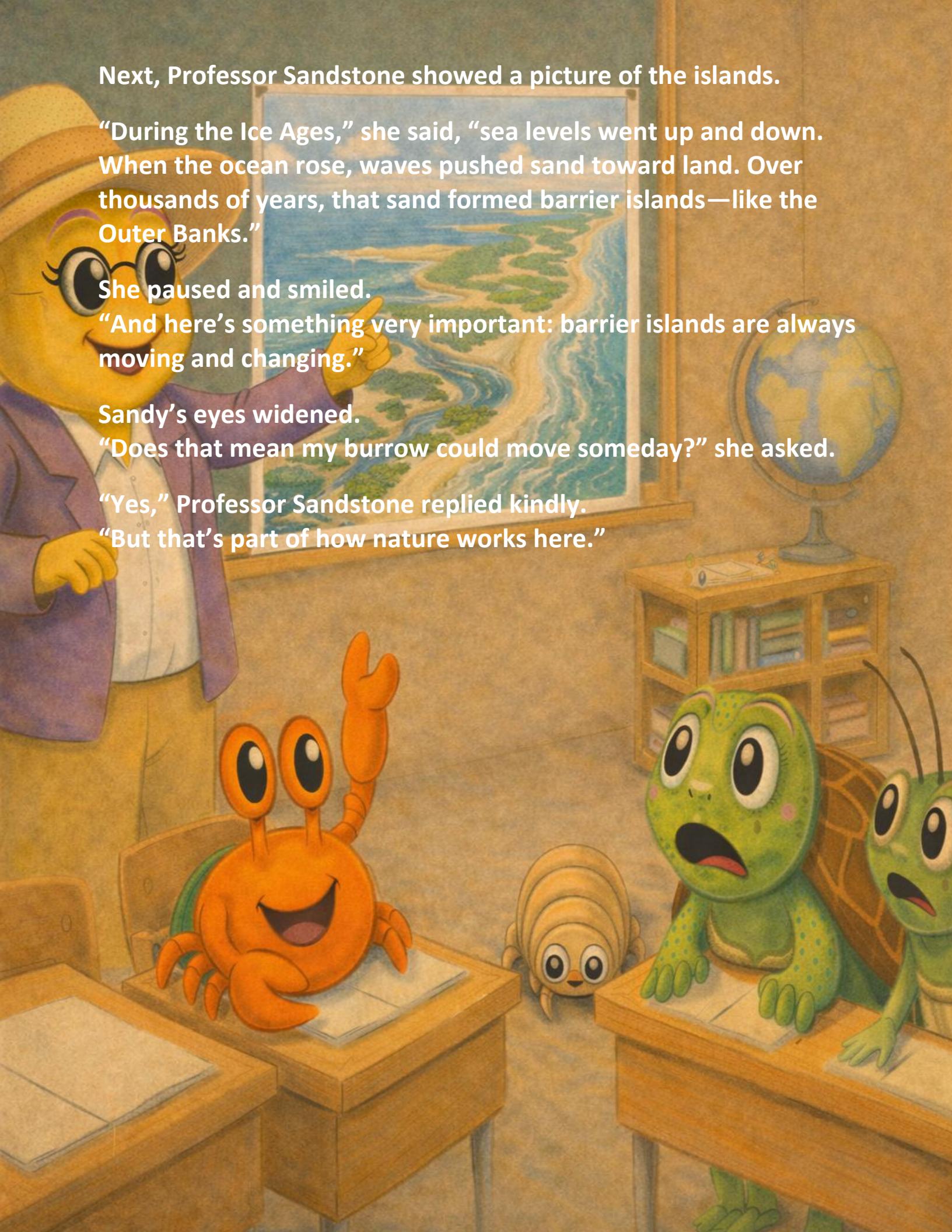
"Most of our beach sand is made of quartz, a very hard mineral. That's why it sparkles in the sun!"

George raised his claw.

"What's quartz again?" he asked.

Professor Sandstone chuckled.

"It's the tough, shiny mineral that makes up most beach sand."



Next, Professor Sandstone showed a picture of the islands.

“During the Ice Ages,” she said, “sea levels went up and down. When the ocean rose, waves pushed sand toward land. Over thousands of years, that sand formed barrier islands—like the Outer Banks.”

She paused and smiled.

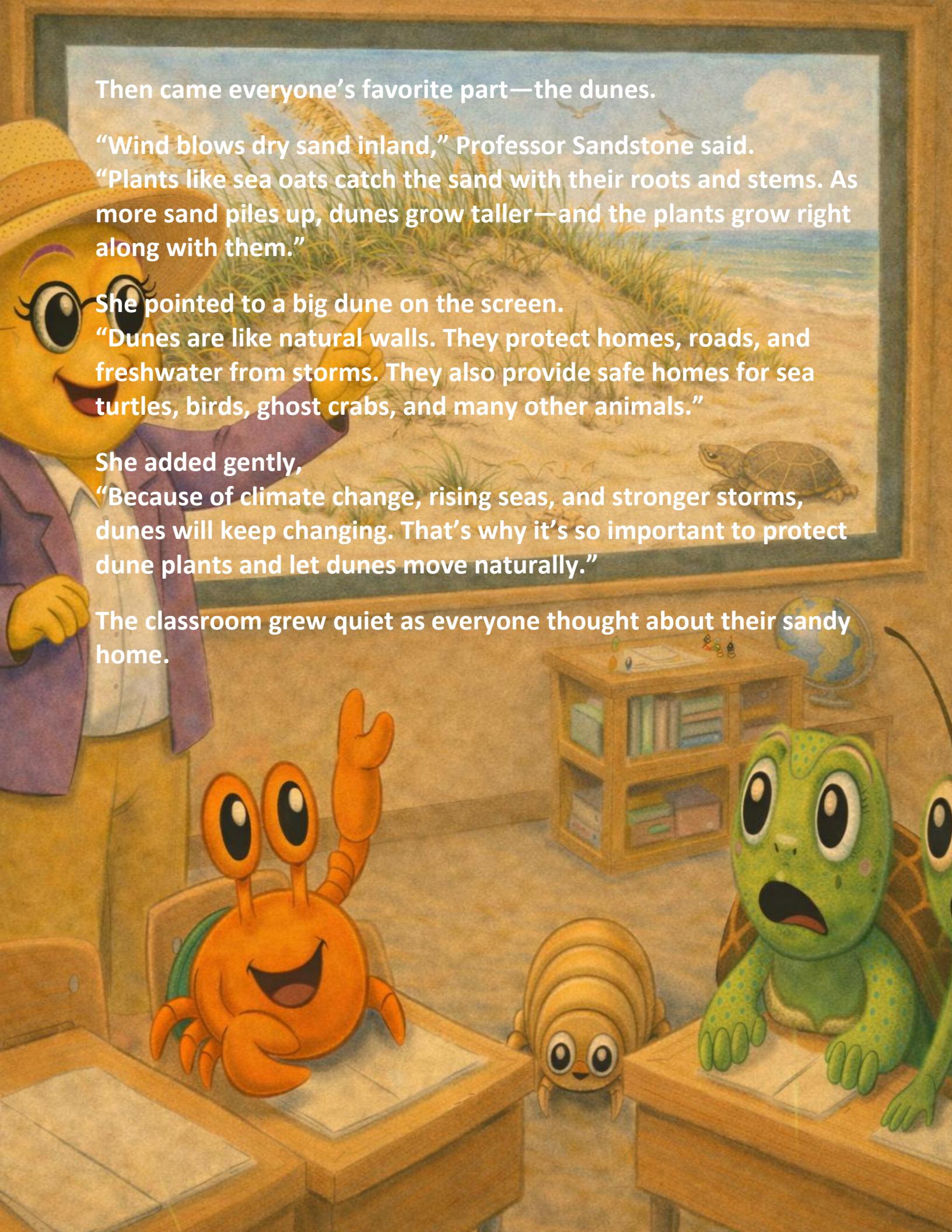
“And here’s something very important: barrier islands are always moving and changing.”

Sandy’s eyes widened.

“Does that mean my burrow could move someday?” she asked.

“Yes,” Professor Sandstone replied kindly.

“But that’s part of how nature works here.”



Then came everyone's favorite part—the dunes.

"Wind blows dry sand inland," Professor Sandstone said.

"Plants like sea oats catch the sand with their roots and stems. As more sand piles up, dunes grow taller—and the plants grow right along with them."

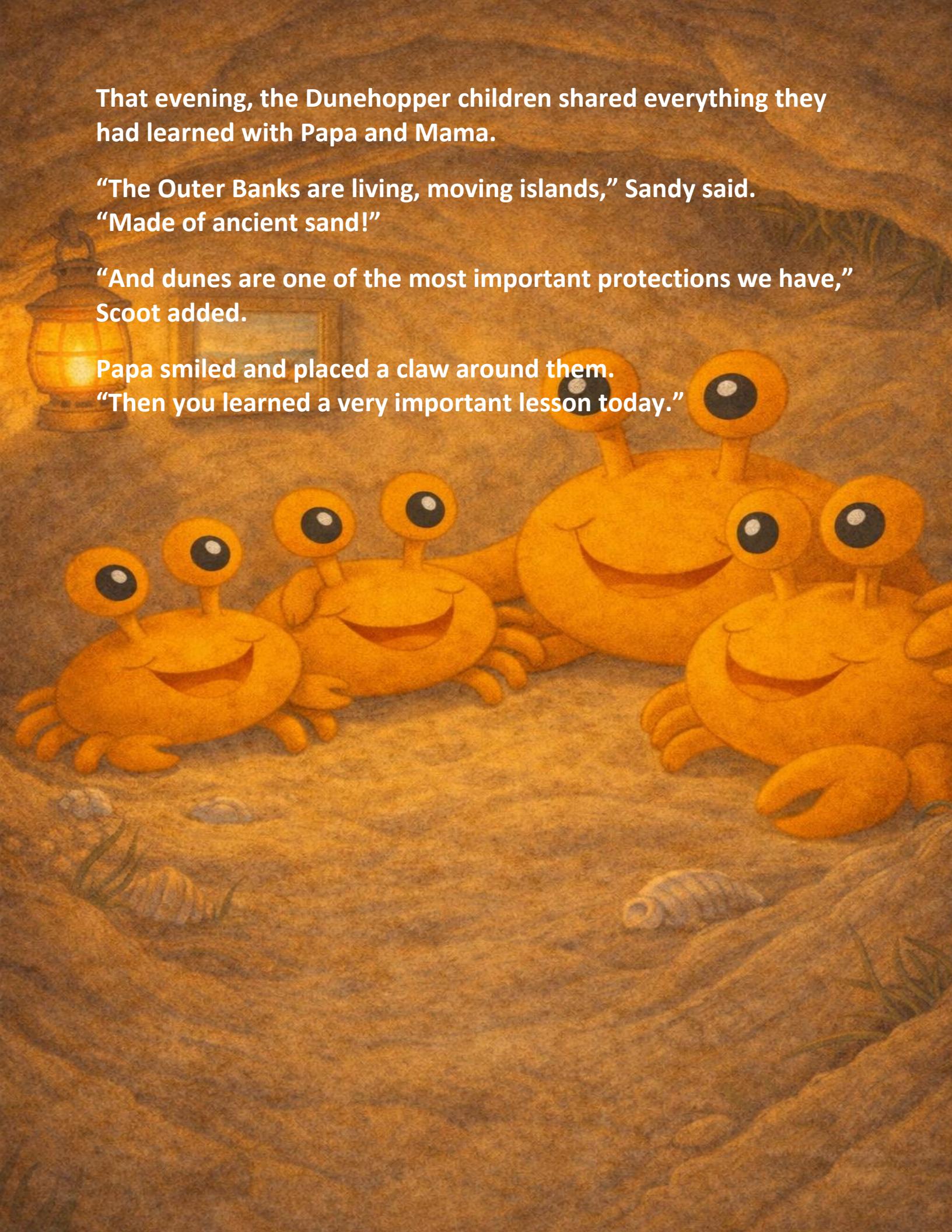
She pointed to a big dune on the screen.

"Dunes are like natural walls. They protect homes, roads, and freshwater from storms. They also provide safe homes for sea turtles, birds, ghost crabs, and many other animals."

She added gently,

"Because of climate change, rising seas, and stronger storms, dunes will keep changing. That's why it's so important to protect dune plants and let dunes move naturally."

The classroom grew quiet as everyone thought about their sandy home.



That evening, the Dunehopper children shared everything they had learned with Papa and Mama.

“The Outer Banks are living, moving islands,” Sandy said.
“Made of ancient sand!”

“And dunes are one of the most important protections we have,” Scoot added.

Papa smiled and placed a claw around them.
“Then you learned a very important lesson today.”

The moon rose over the dunes as the waves whispered nearby—reminding the Dunehoppers that their sandy home was always changing, and always worth protecting.



Did You Know?

The Outer Banks are always on the move!

The sand on the Outer Banks began as rock in the Appalachian Mountains millions of years ago. Rain and rivers carried tiny pieces of that rock all the way to the ocean, where waves and wind shaped them into beaches, dunes, and barrier islands.

Wind moves sand, plants like sea oats trap it, and dunes grow and change over time.

Dunes act like nature's shields, helping protect people, animals, and freshwater from storms and flooding. That's why walking on dunes, pulling plants, or building on them can cause big problems for these sandy protectors.

When we protect dune plants, we help protect the island—and everyone who calls it home.