

# Sea Oats School

## SCIENCE LESSON

*What Are*

*Microplastics?*



Outer Banks, North Carolina

## 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.theobcc.org](http://www.theobcc.org).



After a long day of scurrying along the beach for tasty scraps, Scoot Dunehopper curled up in the family burrow for a nap. The sun was still warm when he woke up, and his mind was buzzing with questions.

“Mama? Papa?” Scoot asked, brushing sand from his claws.

“What are those tiny colorful bits I see all over the beach? They get stuck between my toes when I scurry. And some of my sea friends—like dolphins and sea turtles—have been eating them, thinking they’re food.”



Mama and Papa exchanged a worried glance.

“Those,” Papa said gently, “are called microplastics.”

Mama nodded. “Microplastics are teeny-tiny pieces of plastic—smaller than a grain of rice. Some are made small on purpose, like glitter or tiny beads. But most come from big plastic things that break apart over time.”

“Plastic doesn’t disappear like food scraps,” Papa added. “The sun, saltwater, wind, waves, and sand slowly break plastic bottles, bags, toys, and fishing gear into smaller and smaller pieces. Even when plastic looks gone... it’s not.”



Mama said softly, “They’re in the ocean, on beaches, mixed into sand dunes, floating in the air—and even hidden where animals live.”

Scout thought for a moment, then smiled.

“This Wednesday we have a Science Lesson on microplastics at Sea Oats School. I can’t wait to learn more!”



# Wednesday at Sea Oats School

At 11:00 a.m. sharp, the Sea Oats School auditorium filled with buzzing voices, fluttering wings, and clicking claws. Professor Moontide stepped onto the stage, her shell gleaming beneath the lights.

“Welcome, Sea Oats School students!” she called.  
“Today, we’re learning about something tiny—but very important.”

She paused.

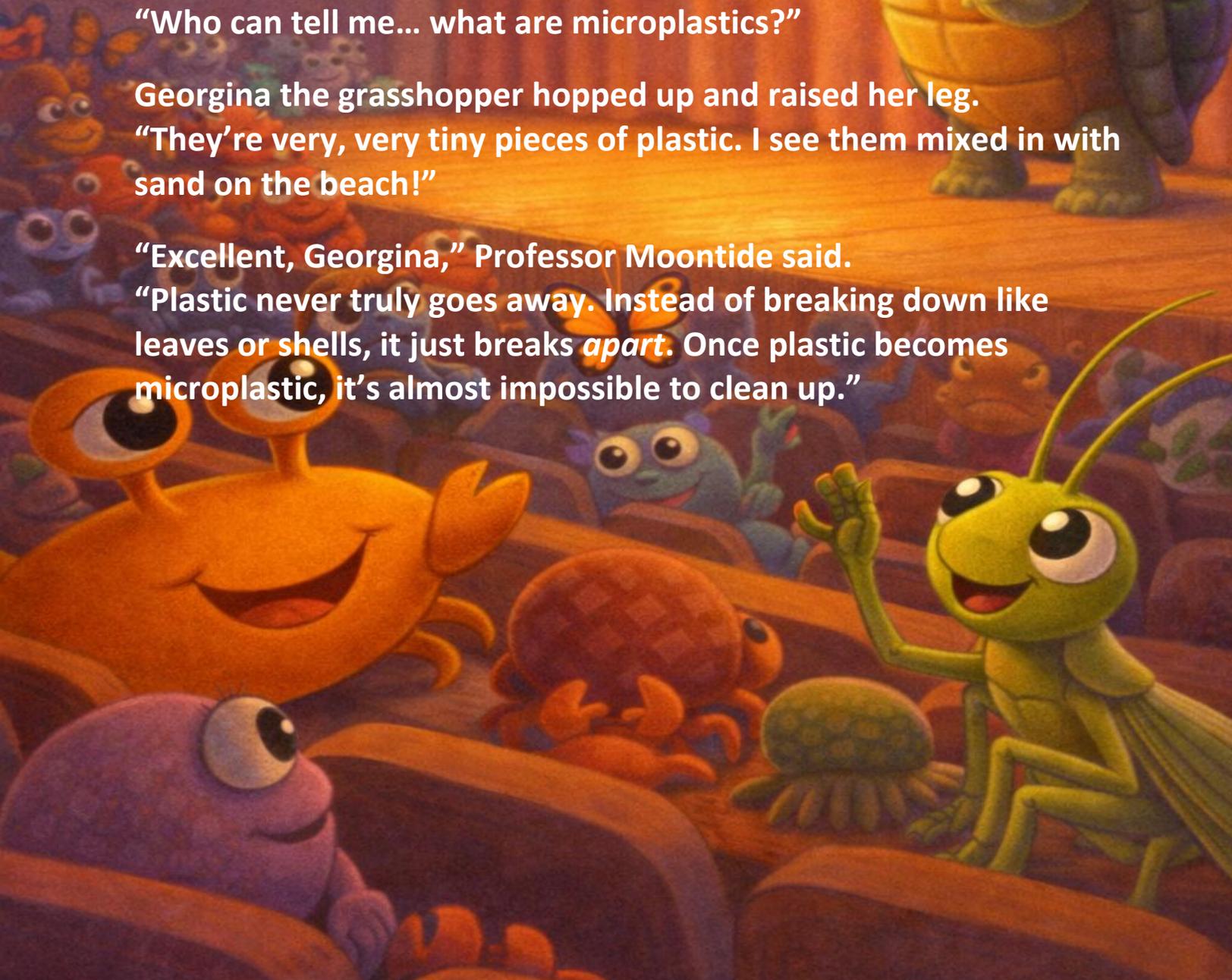
“Who can tell me... what are microplastics?”

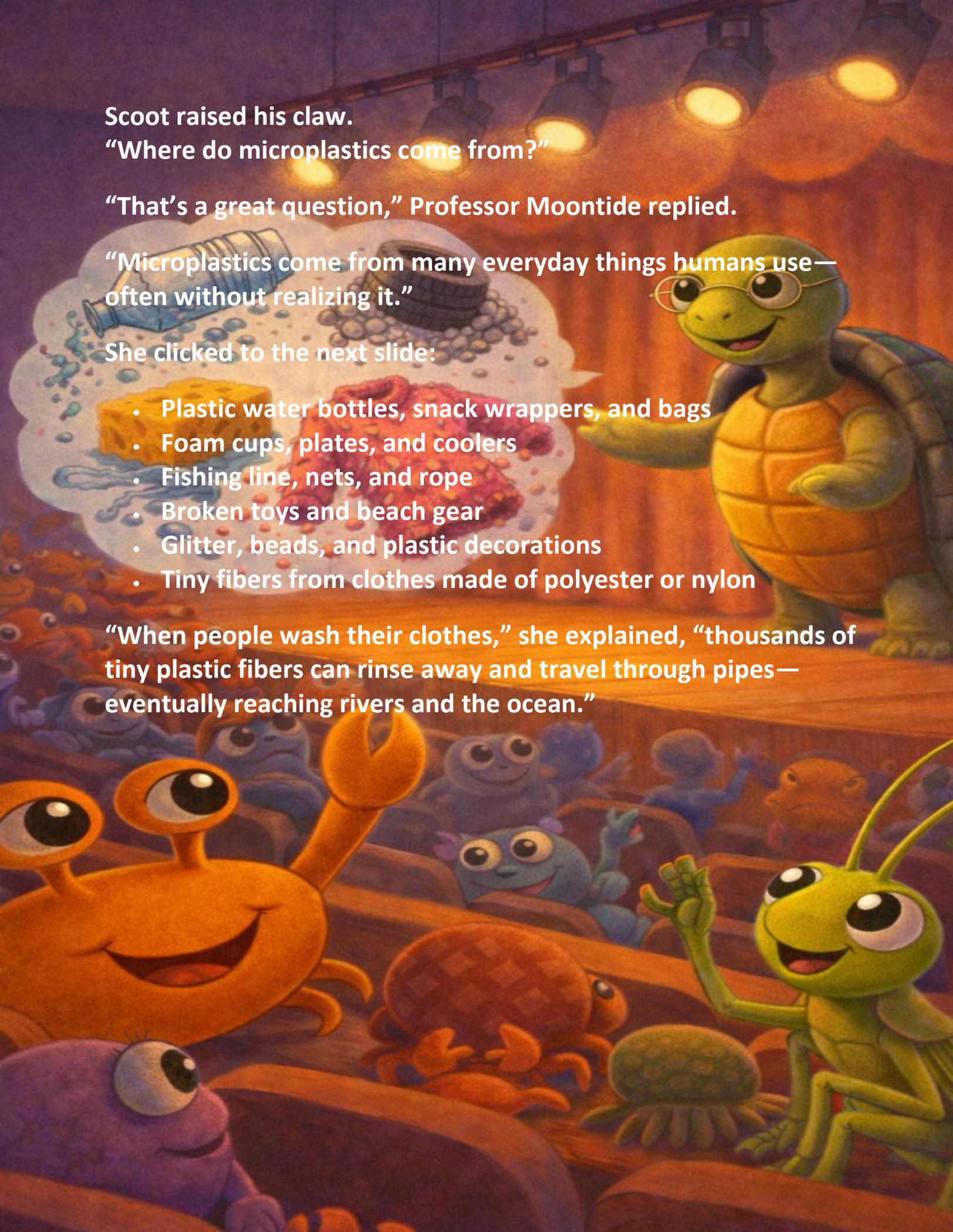
Georgina the grasshopper hopped up and raised her leg.

“They’re very, very tiny pieces of plastic. I see them mixed in with sand on the beach!”

“Excellent, Georgina,” Professor Moontide said.

“Plastic never truly goes away. Instead of breaking down like leaves or shells, it just breaks *apart*. Once plastic becomes microplastic, it’s almost impossible to clean up.”





Scout raised his claw.

“Where do microplastics come from?”

“That’s a great question,” Professor Moontide replied.

“Microplastics come from many everyday things humans use—often without realizing it.”

She clicked to the next slide:

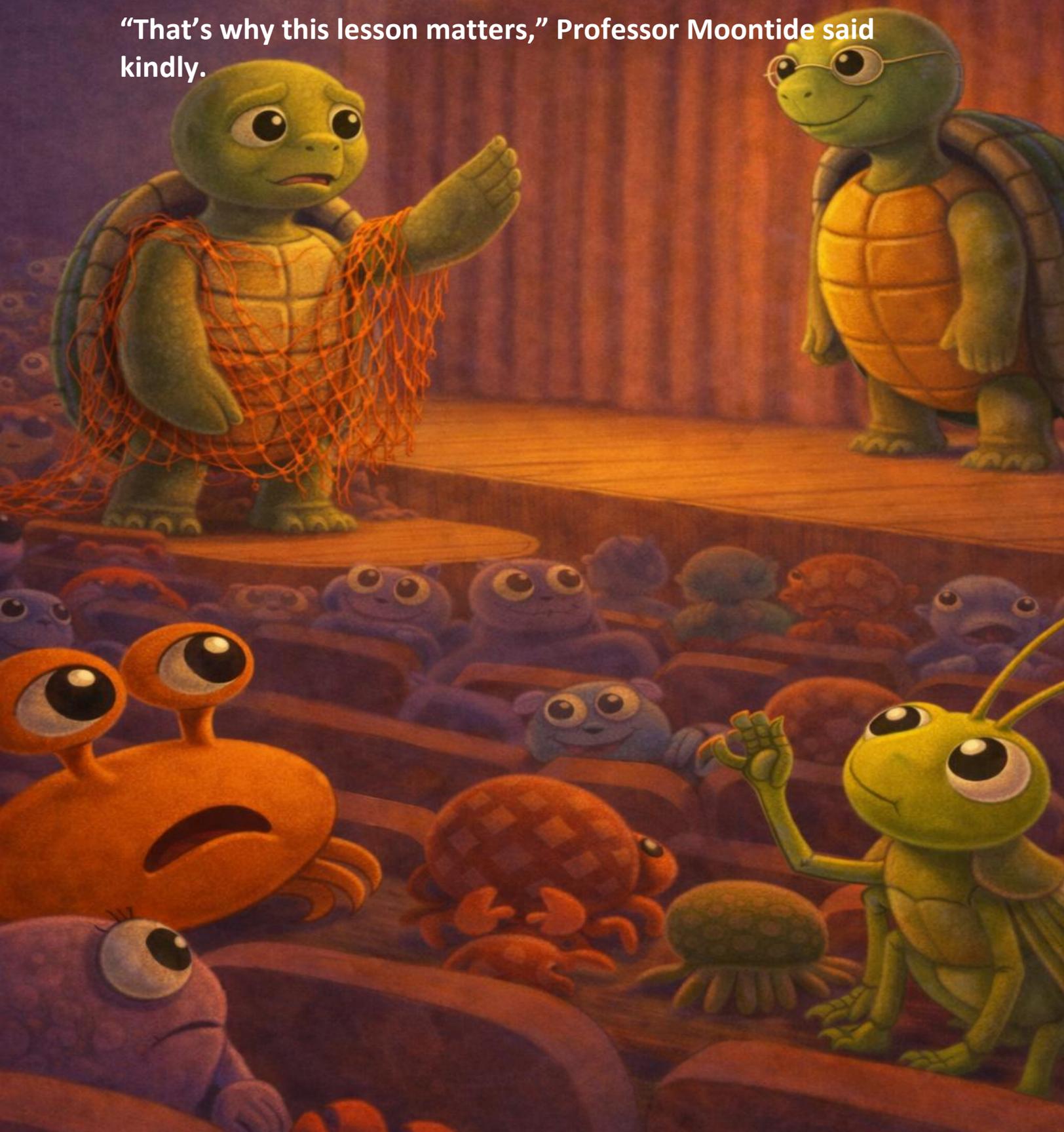
- Plastic water bottles, snack wrappers, and bags
- Foam cups, plates, and coolers
- Fishing line, nets, and rope
- Broken toys and beach gear
- Glitter, beads, and plastic decorations
- Tiny fibers from clothes made of polyester or nylon

“When people wash their clothes,” she explained, “thousands of tiny plastic fibers can rinse away and travel through pipes—eventually reaching rivers and the ocean.”

Suddenly, Tom the sea turtle lifted his flipper.  
“I almost got tangled in fishing net last year,” he said quietly.

The room fell silent.

“That’s why this lesson matters,” Professor Moontide said kindly.



# Where Are Microplastics Found on the Outer Banks?

Scout raised his claw again.

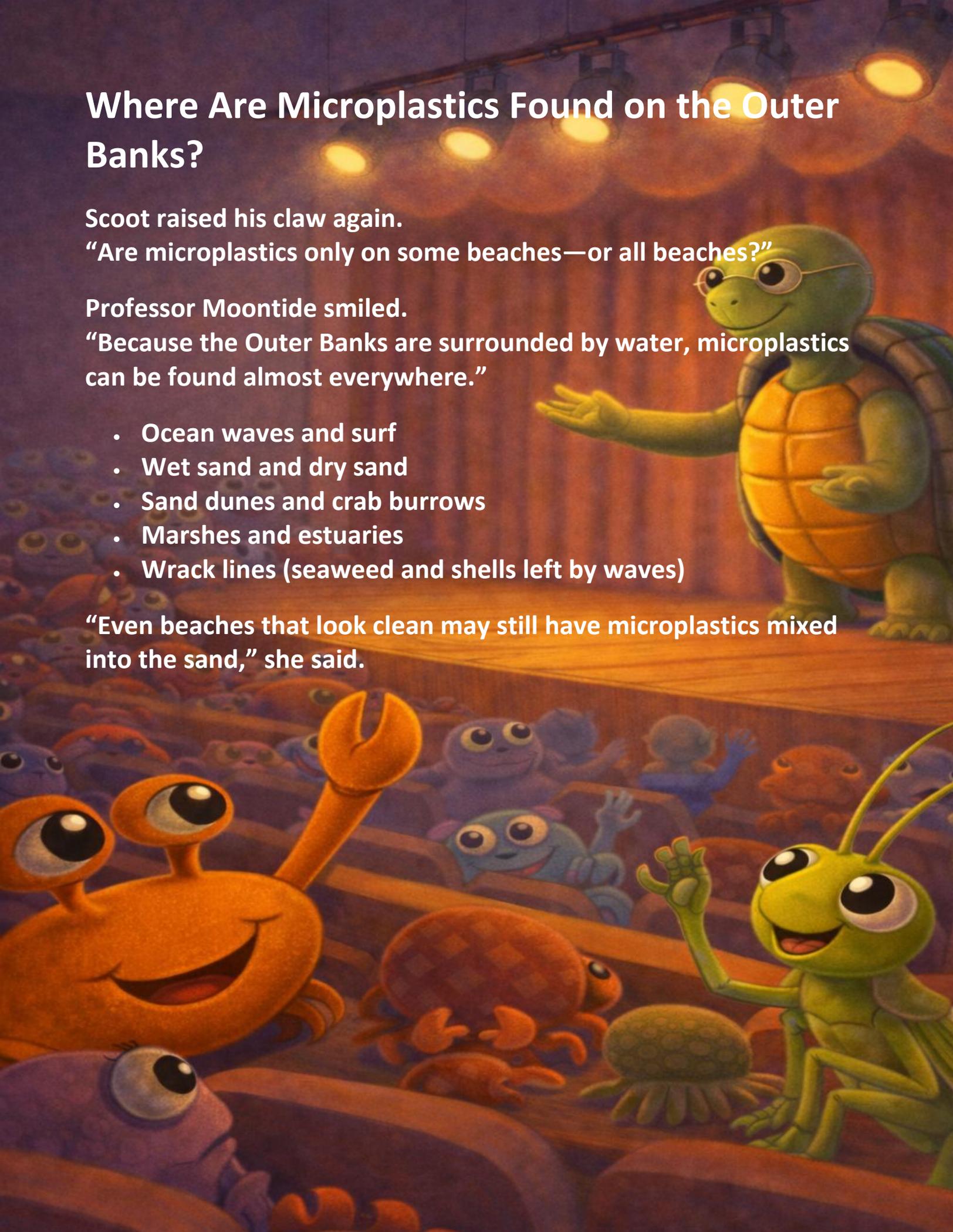
“Are microplastics only on some beaches—or all beaches?”

Professor Moontide smiled.

“Because the Outer Banks are surrounded by water, microplastics can be found almost everywhere.”

- Ocean waves and surf
- Wet sand and dry sand
- Sand dunes and crab burrows
- Marshes and estuaries
- Wrack lines (seaweed and shells left by waves)

“Even beaches that look clean may still have microplastics mixed into the sand,” she said.



# Why Are Microplastics Dangerous?

Scoot swallowed. "Why do animals eat them?"

"Because microplastics can look just like food," Professor Moontide explained.

They can resemble:



Fish eggs

Tiny shrimp

Plankton

- Fish eggs
- Tiny shrimp
- Plankton

Seeds

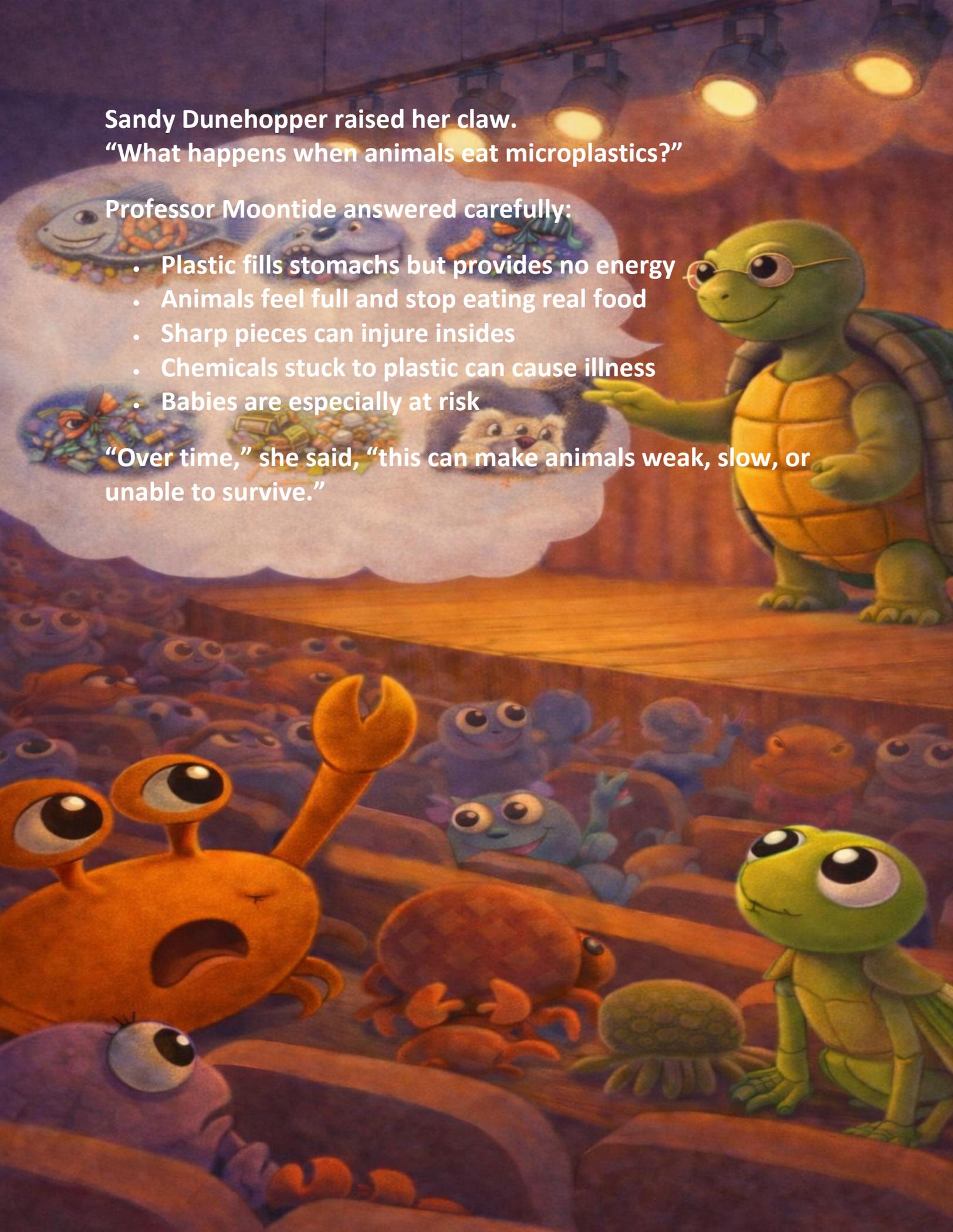
Shell pieces

Shell pieces

- Seeds
- Shell pieces

Animals eat them by accident—and that's where the trouble begins.





Sandy Dunehopper raised her claw.  
“What happens when animals eat microplastics?”

Professor Moontide answered carefully:

- Plastic fills stomachs but provides no energy
- Animals feel full and stop eating real food
- Sharp pieces can injure insides
- Chemicals stuck to plastic can cause illness
- Babies are especially at risk

“Over time,” she said, “this can make animals weak, slow, or unable to survive.”

# How Microplastics Affect Outer Banks Wildlife

## Ghost crabs

Microplastics mix into sand where crabs dig and hunt. Pieces can be swallowed or carried into burrows.



## Sea turtles

Microplastics can look like jellyfish or prey. Plastic can block their stomachs and make swimming harder.



## Seabirds

Birds may feed plastic to their chicks by mistake. Some chicks never grow strong enough to fly.



## Fish and plankton

Tiny creatures eat microplastics first. Bigger animals eat them next—moving plastic up the food chain.



Professor Moontide added, "That means plastic can even reach animals—and people—far from the beach."



# What Can Humans Do to Help?

## At the Beach

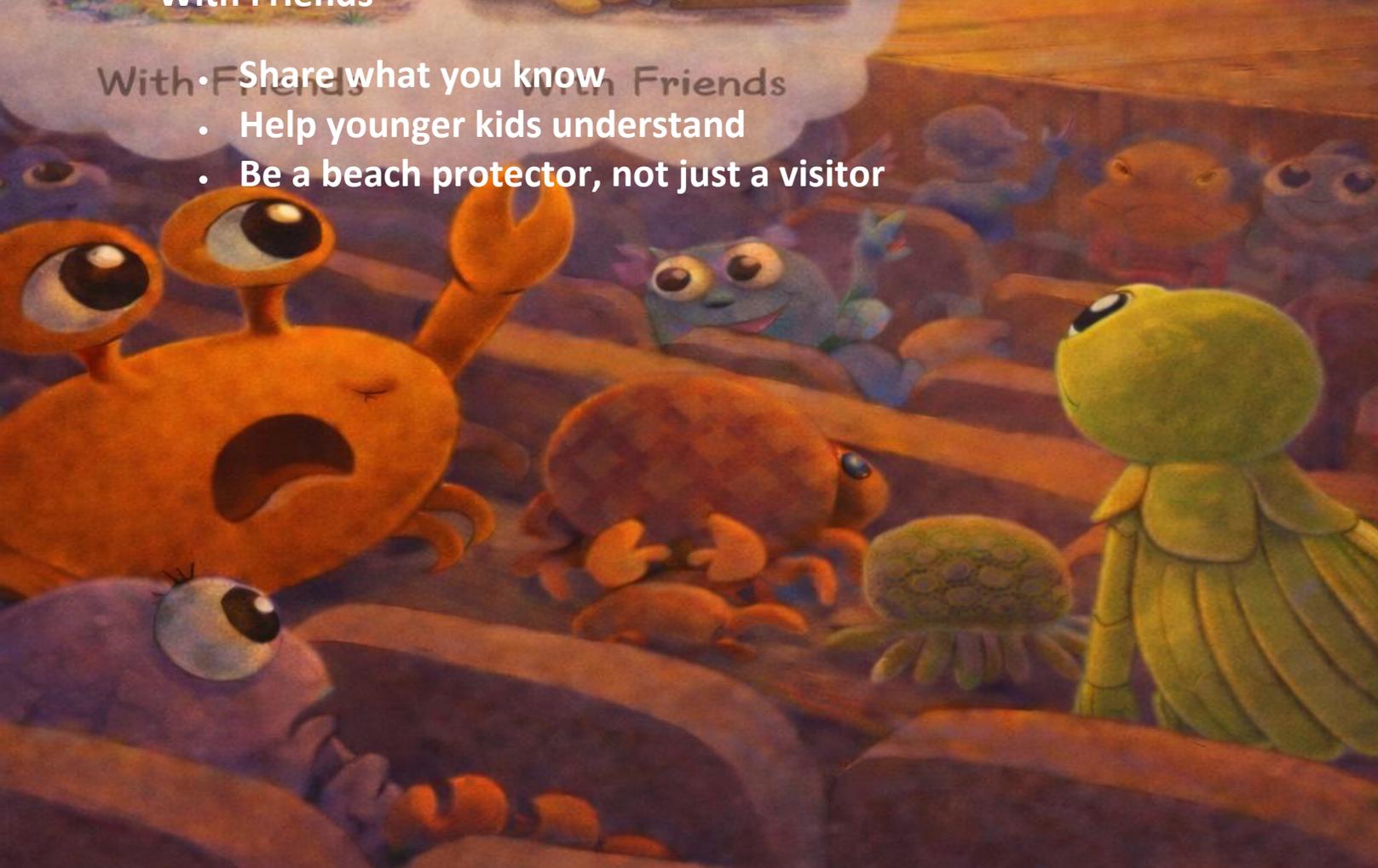
- Pick up trash (with an adult)
- Never leave wrappers behind
- Don't play with plastic—throw it away
- Stay off dunes so plants trap sand, not plastic

## At Home

- Use reusable bottles and containers
- Say no to plastic straws and bags
- Wash clothes only when needed
- Choose natural fabrics when possible

## With Friends

- Share what you know
- Help younger kids understand
- Be a beach protector, not just a visitor



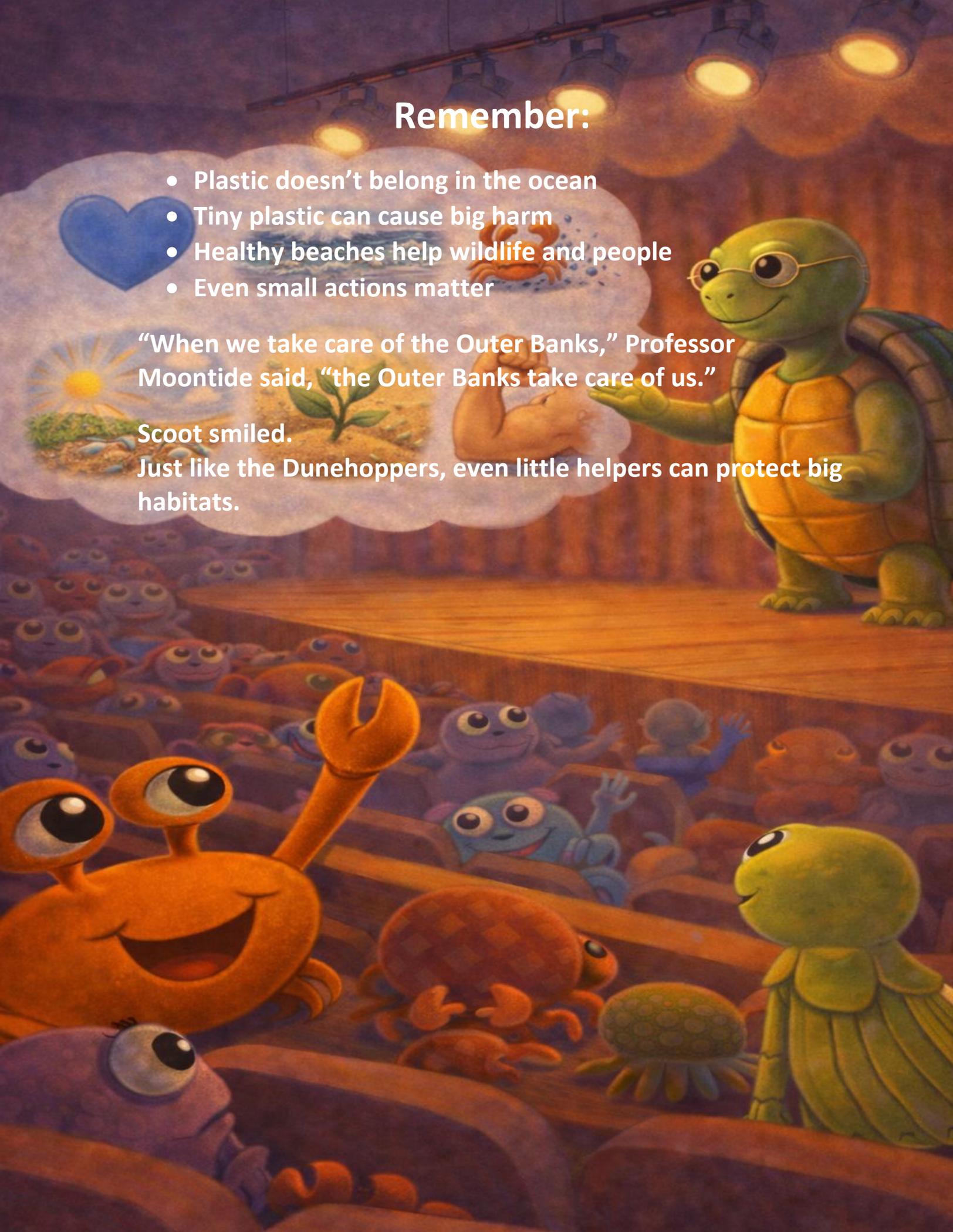
## Remember:

- Plastic doesn't belong in the ocean
- Tiny plastic can cause big harm
- Healthy beaches help wildlife and people
- Even small actions matter

"When we take care of the Outer Banks," Professor Moontide said, "the Outer Banks take care of us."

Scout smiled.

Just like the Dunehoppers, even little helpers can protect big habitats.



## Did You Know?

- Did you know that microplastics can be smaller than a grain of sand—so tiny that even when a beach looks clean, thousands of plastic pieces can still be mixed into the sand?
- On the Outer Banks, waves, wind, and sunshine slowly break bigger plastic items (like bottles, fishing line, and foam cups) into these teeny pieces. Animals such as ghost crabs, sea turtles, seabirds, and fish can mistake microplastics for food, which can make them sick.
- That's why picking up trash, using reusable items, and protecting dunes helps keep beaches—and wildlife—healthy!



# References

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