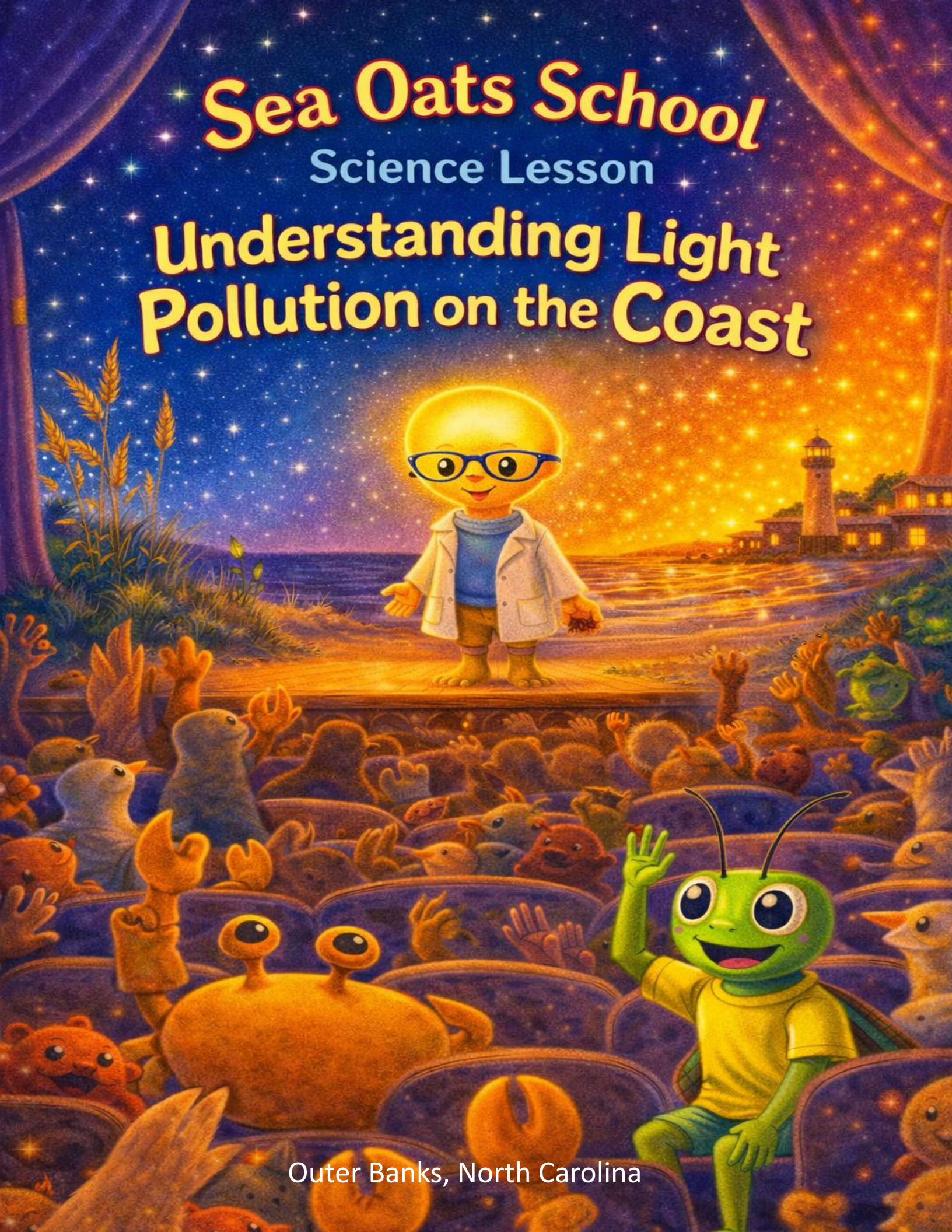

Sea Oats School
Science Lesson
Understanding Light Pollution on the Coast
Outer Banks, North Carolina

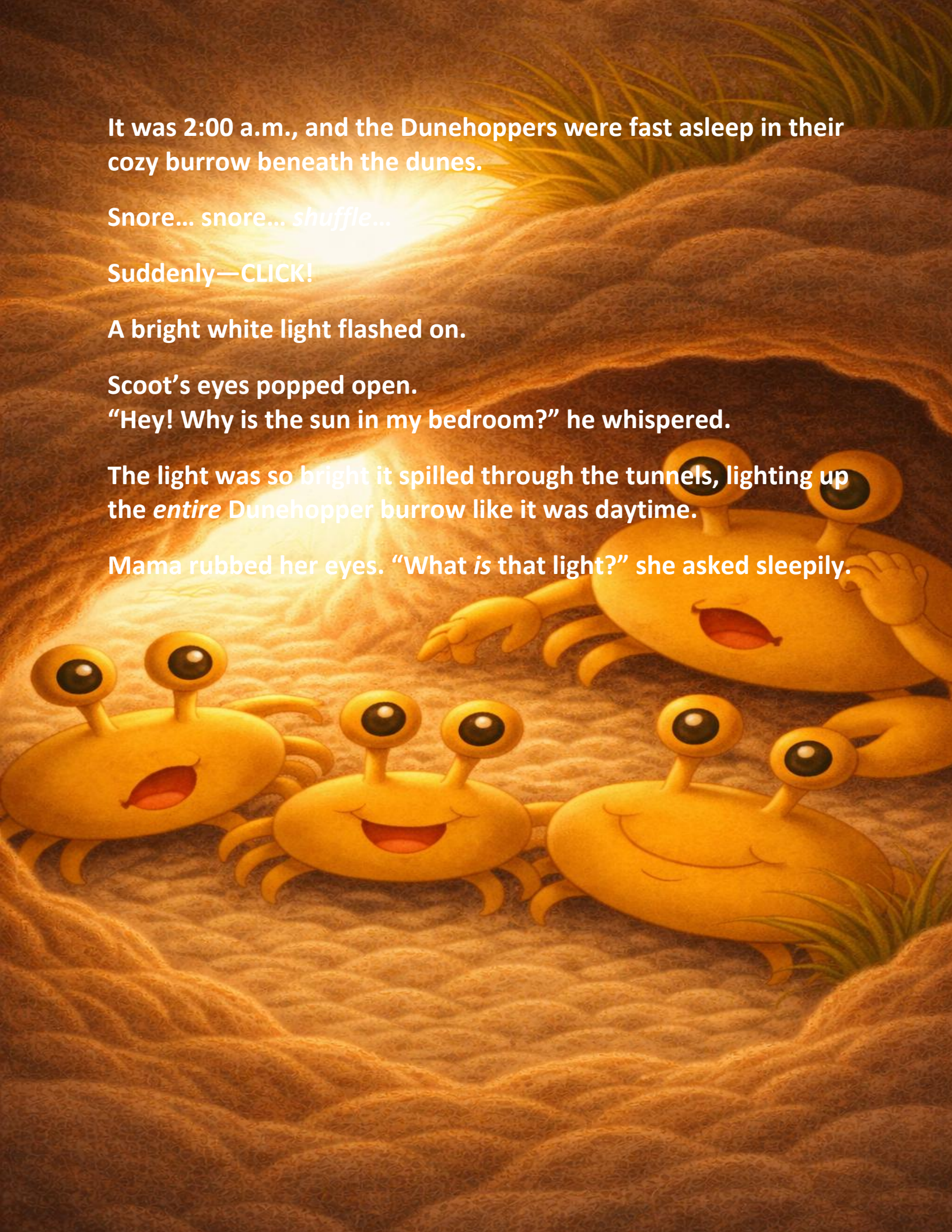
Forward

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.



It was 2:00 a.m., and the Dunehoppers were fast asleep in their cozy burrow beneath the dunes.

Snore… snore… *shuffle*…

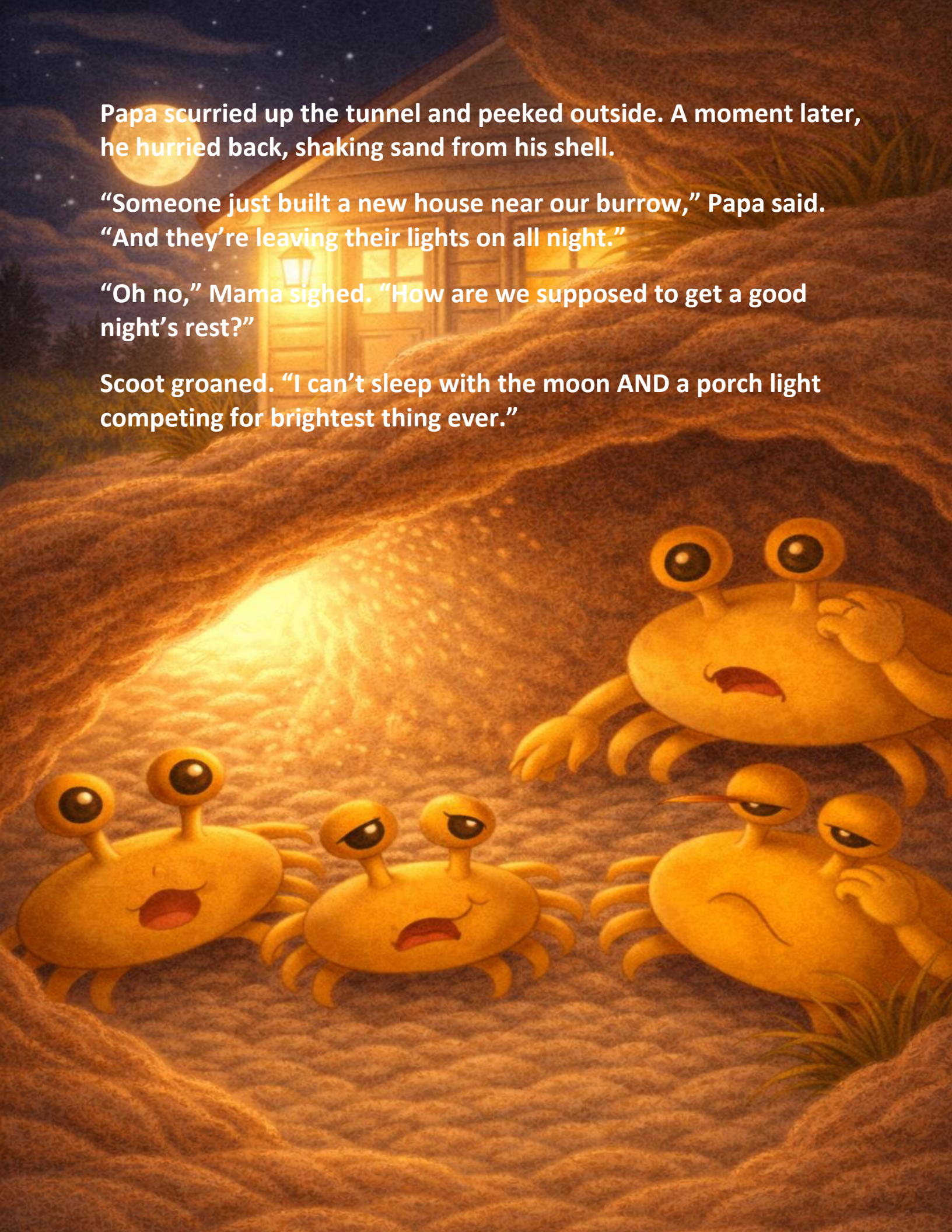
Suddenly—CLICK!

A bright white light flashed on.

Scoot's eyes popped open.
"Hey! Why is the sun in my bedroom?" he whispered.

The light was so bright it spilled through the tunnels, lighting up the *entire* Dunehopper burrow like it was daytime.

Mama rubbed her eyes. "What *is* that light?" she asked sleepily.

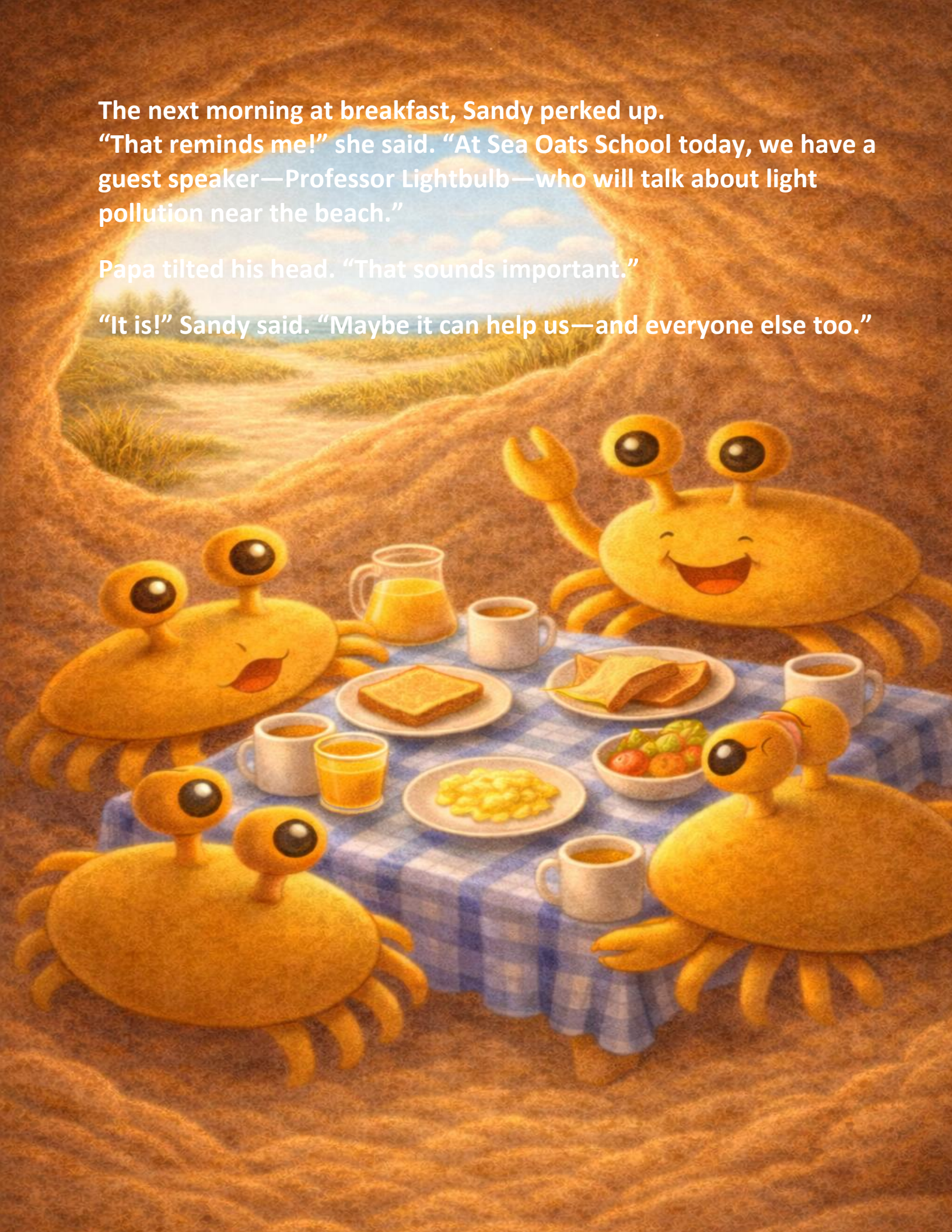


Papa scurried up the tunnel and peeked outside. A moment later, he hurried back, shaking sand from his shell.

"Someone just built a new house near our burrow," Papa said. "And they're leaving their lights on all night."

"Oh no," Mama sighed. "How are we supposed to get a good night's rest?"

Scoot groaned. "I can't sleep with the moon AND a porch light competing for brightest thing ever."

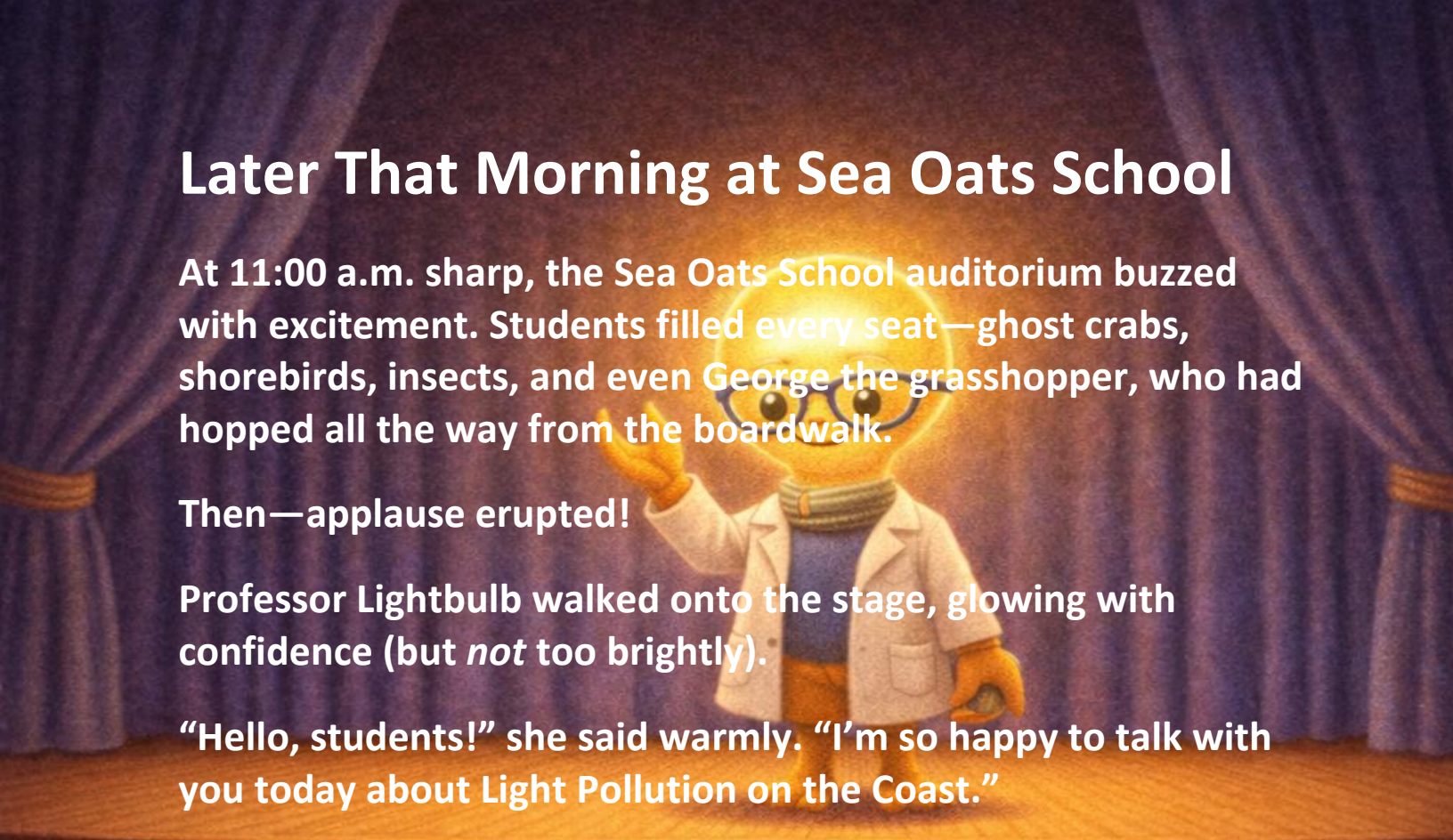


The next morning at breakfast, Sandy perked up.
“That reminds me!” she said. “At Sea Oats School today, we have a guest speaker—Professor Lightbulb—who will talk about light pollution near the beach.”

Papa tilted his head. “That sounds important.”

“It is!” Sandy said. “Maybe it can help us—and everyone else too.”

Later That Morning at Sea Oats School

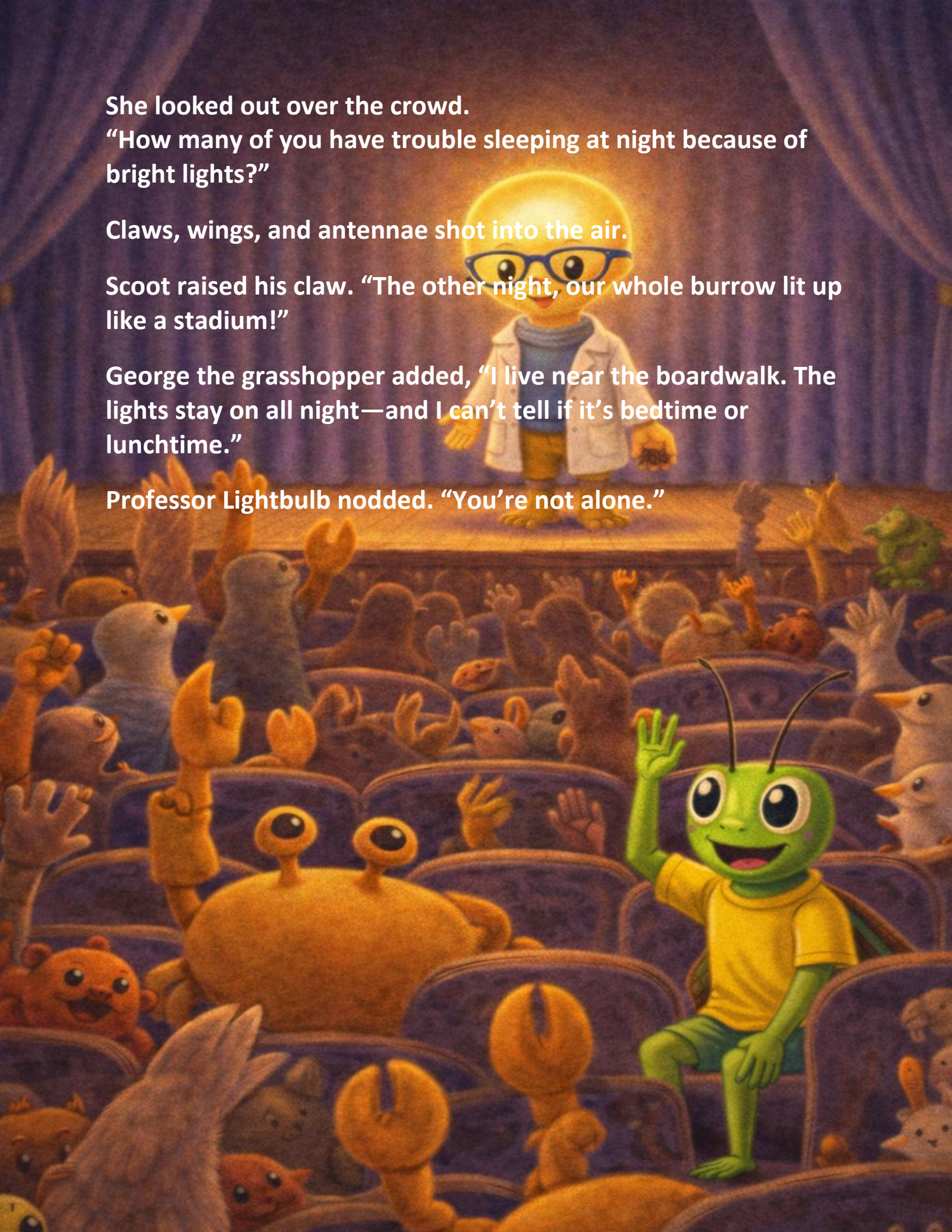


At 11:00 a.m. sharp, the Sea Oats School auditorium buzzed with excitement. Students filled every seat—ghost crabs, shorebirds, insects, and even George the grasshopper, who had hopped all the way from the boardwalk.

Then—applause erupted!

Professor Lightbulb walked onto the stage, glowing with confidence (but *not* too brightly).

"Hello, students!" she said warmly. "I'm so happy to talk with you today about Light Pollution on the Coast."



She looked out over the crowd.
“How many of you have trouble sleeping at night because of bright lights?”

Claws, wings, and antennae shot into the air.

Scoot raised his claw. “The other night, our whole burrow lit up like a stadium!”

George the grasshopper added, “I live near the boardwalk. The lights stay on all night—and I can’t tell if it’s bedtime or lunchtime.”

Professor Lightbulb nodded. “You’re not alone.”

Why Light Pollution Matters

She clicked to her first slide.

“Artificial light at night,” Professor Lightbulb explained, “is one of the most preventable threats to coastal wildlife.”

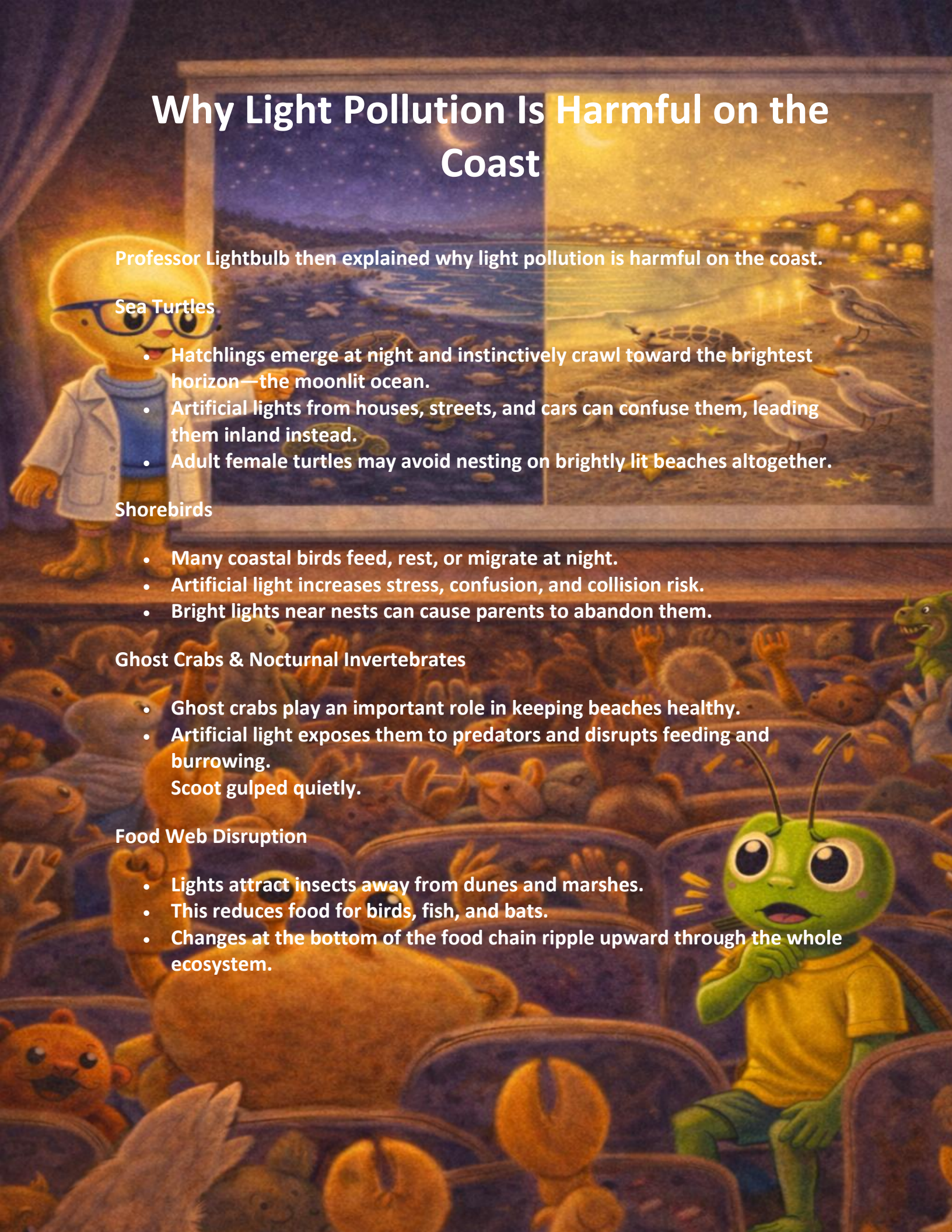
She pointed to the screen.

“Barrier islands, beaches, dunes, and estuaries evolved under naturally dark night skies. Many animals depend on darkness to:

- navigate
- find food
- reproduce
- and avoid predators

Even small changes in lighting can cause big problems.”

Why Light Pollution Is Harmful on the Coast



Professor Lightbulb then explained why light pollution is harmful on the coast.

Sea Turtles

- Hatchlings emerge at night and instinctively crawl toward the brightest horizon—the moonlit ocean.
- Artificial lights from houses, streets, and cars can confuse them, leading them inland instead.
- Adult female turtles may avoid nesting on brightly lit beaches altogether.

Shorebirds

- Many coastal birds feed, rest, or migrate at night.
- Artificial light increases stress, confusion, and collision risk.
- Bright lights near nests can cause parents to abandon them.

Ghost Crabs & Nocturnal Invertebrates

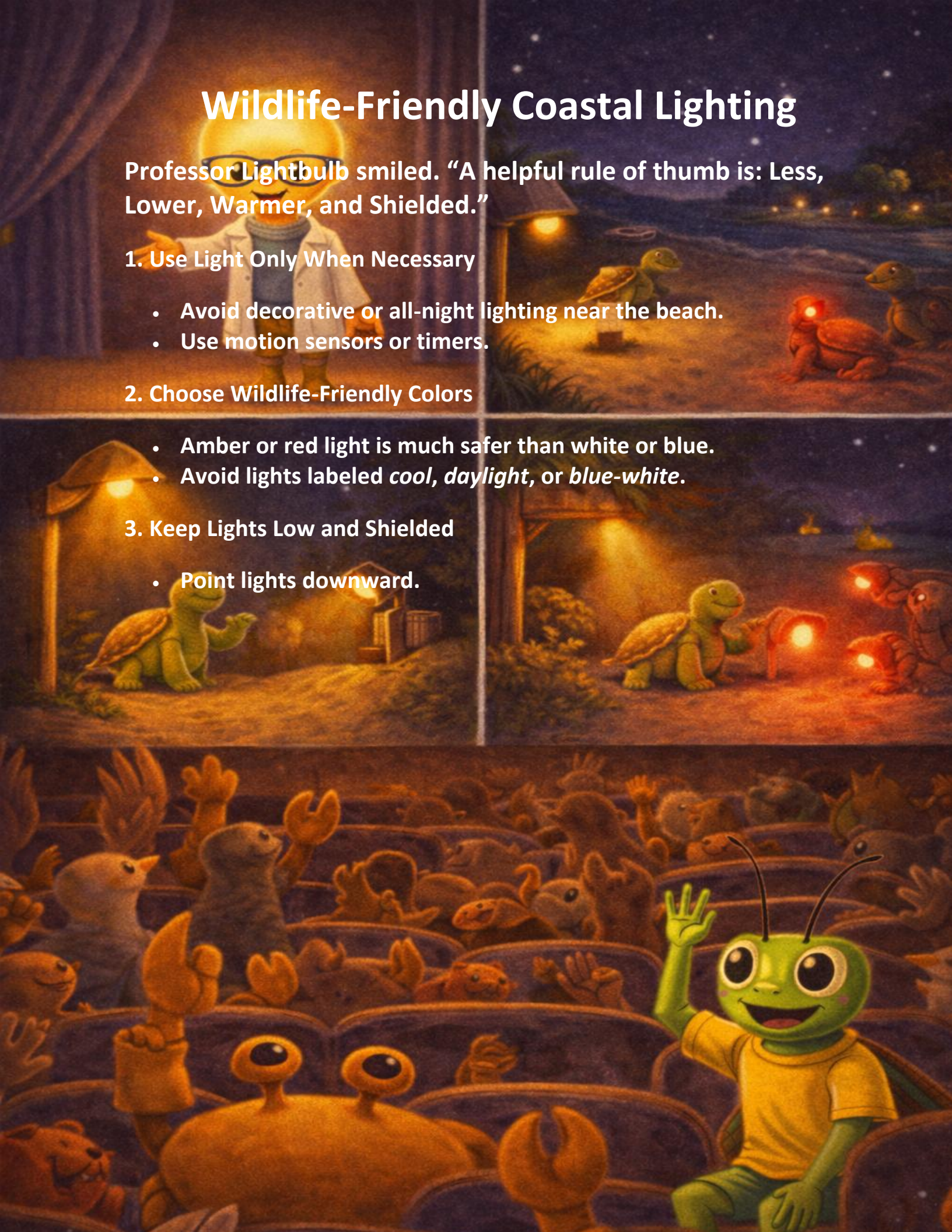
- Ghost crabs play an important role in keeping beaches healthy.
- Artificial light exposes them to predators and disrupts feeding and burrowing.

Scoot gulped quietly.

Food Web Disruption

- Lights attract insects away from dunes and marshes.
- This reduces food for birds, fish, and bats.
- Changes at the bottom of the food chain ripple upward through the whole ecosystem.

Wildlife-Friendly Coastal Lighting



Professor Lightbulb smiled. “A helpful rule of thumb is: Less, Lower, Warmer, and Shielded.”

1. Use Light Only When Necessary

- Avoid decorative or all-night lighting near the beach.
- Use motion sensors or timers.

2. Choose Wildlife-Friendly Colors

- Amber or red light is much safer than white or blue.
- Avoid lights labeled *cool*, *daylight*, or *blue-white*.

3. Keep Lights Low and Shielded

- Point lights downward.

Professor Lightbulb then explained to the audience some beach and outdoor best practices.

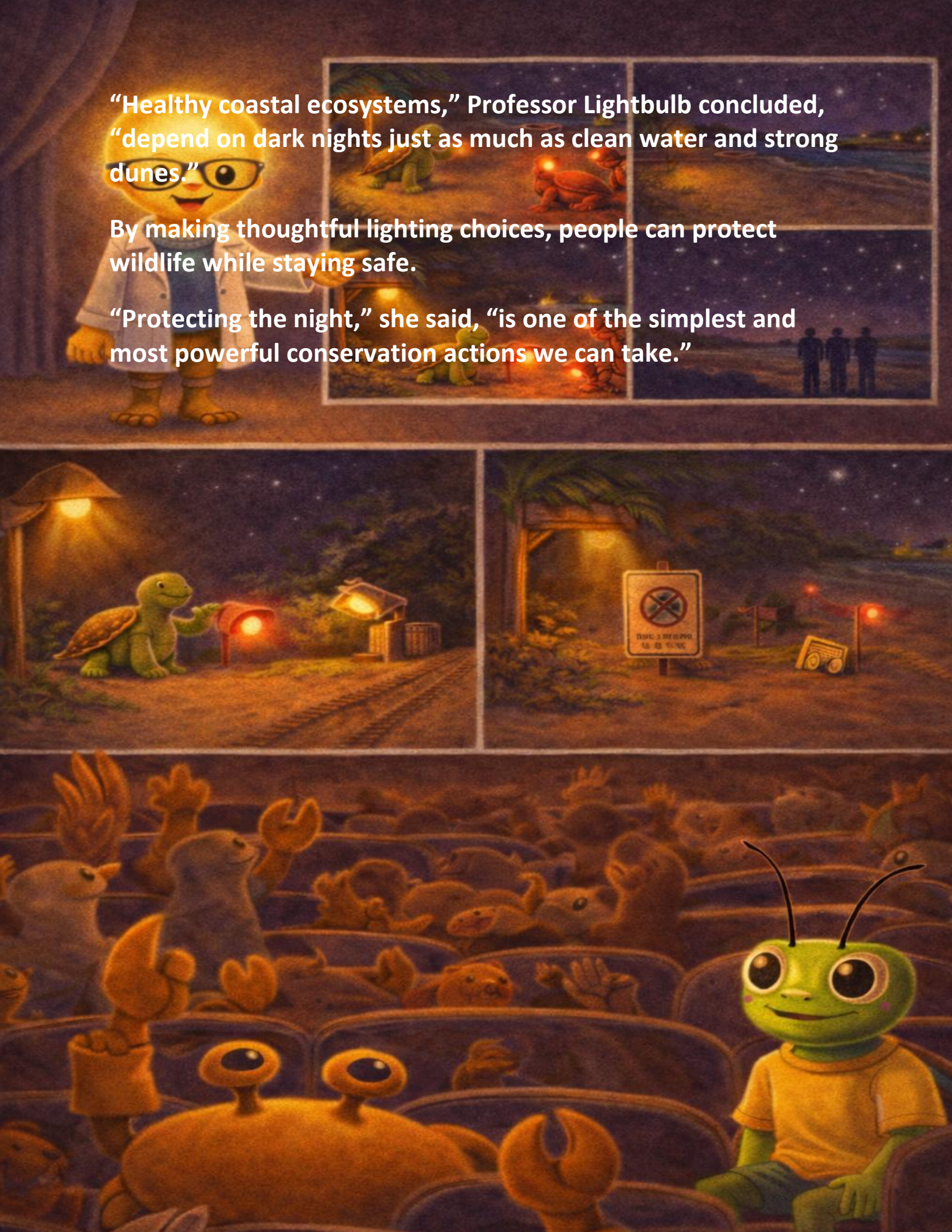
Beach and Outdoor Best Practices

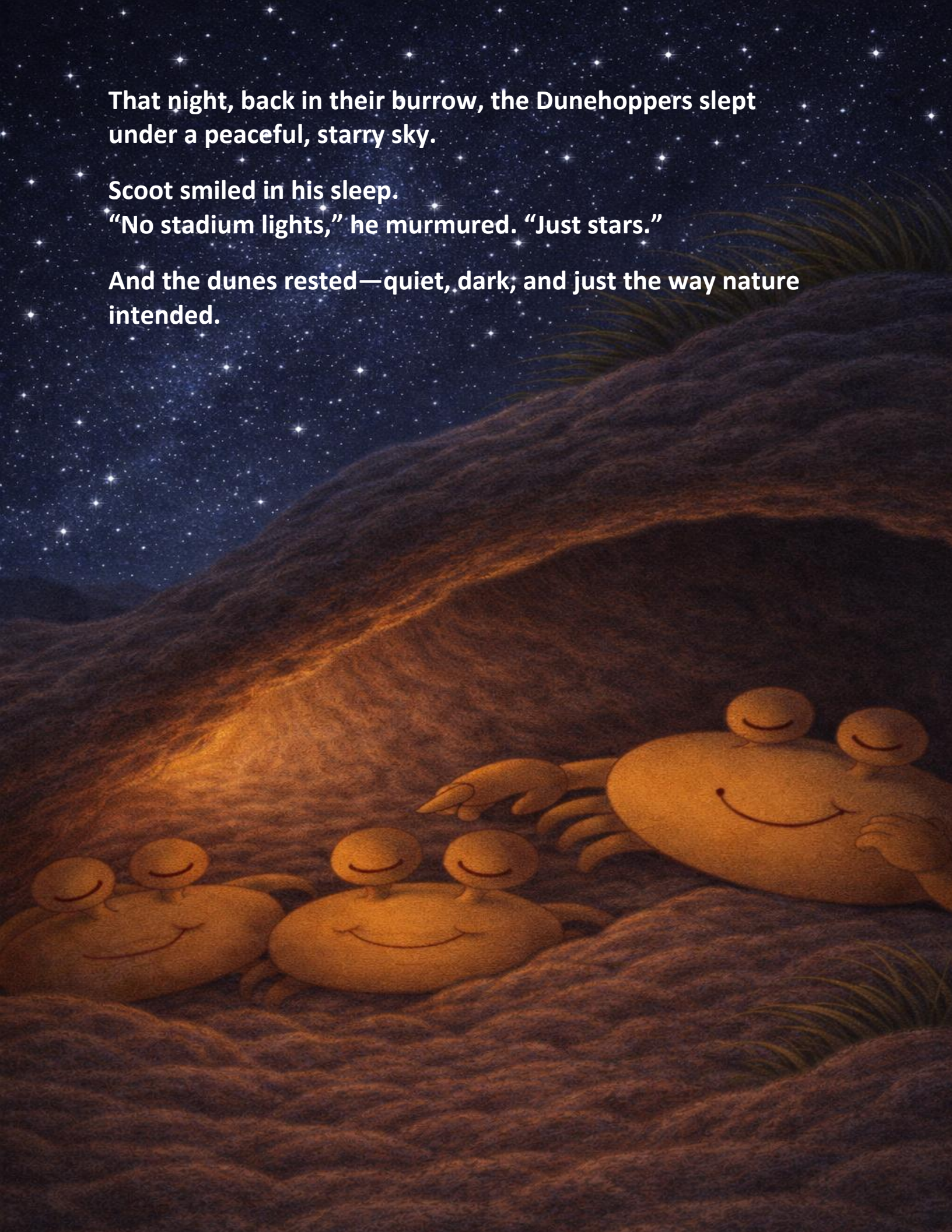
- Use red-filtered flashlights at night.
- Avoid phone screens and camera flashes on the beach.
- Never drive or park on the beach at night unless authorized.
- Respect nesting areas and seasonal lighting rules.

Benefits Beyond Wildlife

“Reducing light pollution doesn’t just help animals,” Professor Lightbulb said. “It helps *everyone*.”

- Preserves dark skies and stargazing
- Improves sleep and circadian health
- Saves energy and money
- Protects the special feeling of coastal communities


“Healthy coastal ecosystems,” Professor Lightbulb concluded, “depend on dark nights just as much as clean water and strong dunes.”
By making thoughtful lighting choices, people can protect wildlife while staying safe.
“Protecting the night,” she said, “is one of the simplest and most powerful conservation actions we can take.”



That night, back in their burrow, the Dunehoppers slept under a peaceful, starry sky.

Scoot smiled in his sleep.
“No stadium lights,” he murmured. “Just stars.”

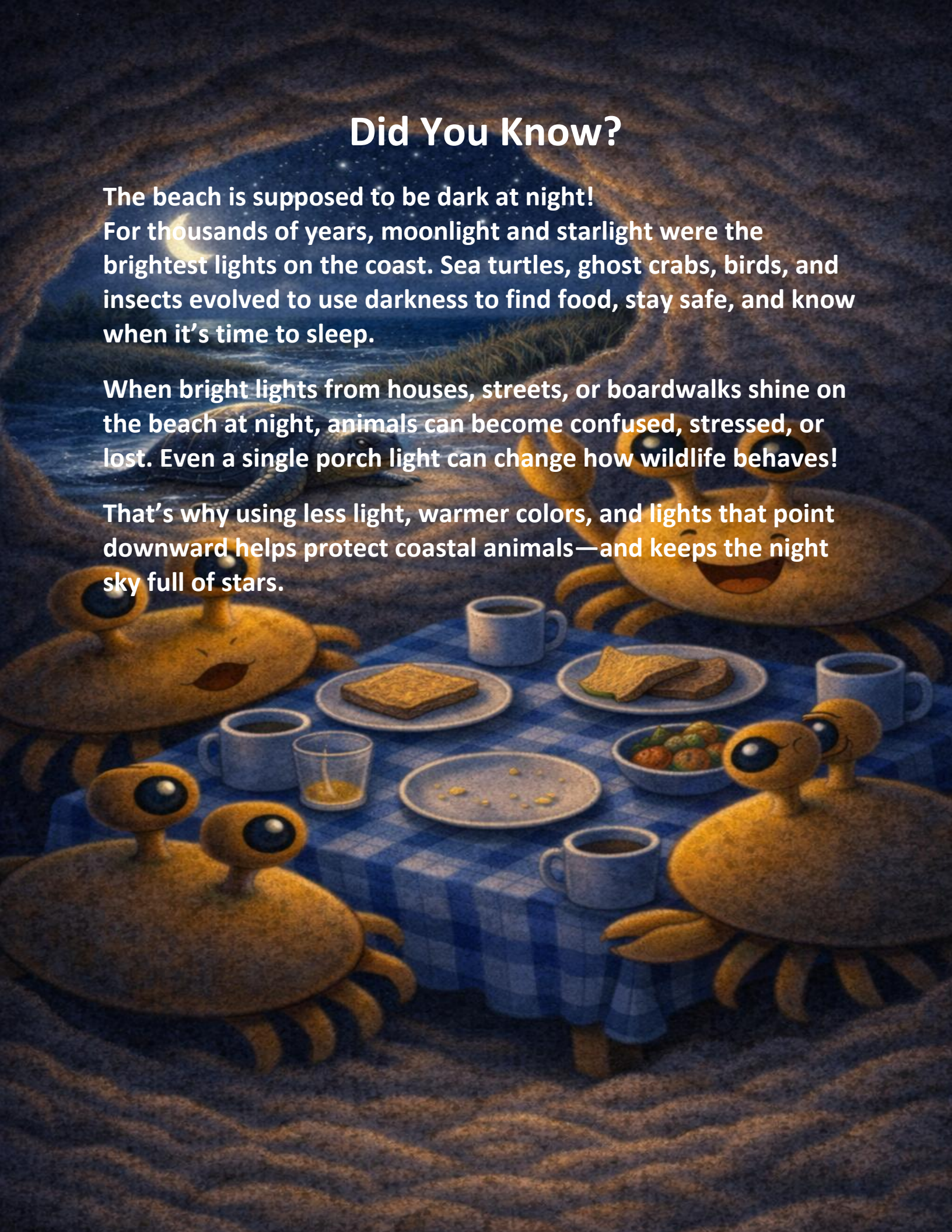
And the dunes rested—quiet, dark, and just the way nature intended.

Did You Know?

The beach is supposed to be dark at night!
For thousands of years, moonlight and starlight were the brightest lights on the coast. Sea turtles, ghost crabs, birds, and insects evolved to use darkness to find food, stay safe, and know when it's time to sleep.

When bright lights from houses, streets, or boardwalks shine on the beach at night, animals can become confused, stressed, or lost. Even a single porch light can change how wildlife behaves!

That's why using less light, warmer colors, and lights that point downward helps protect coastal animals—and keeps the night sky full of stars.



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