

SCIENCE
FOR
Little Hearts
AND
Hands



THE
BIG BOOK
of
SCIENCE STORIES

FIELDS and FLOWERS





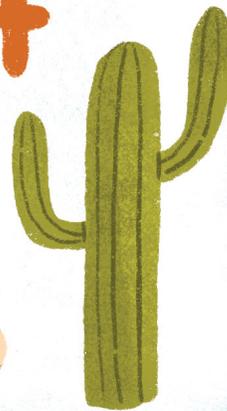
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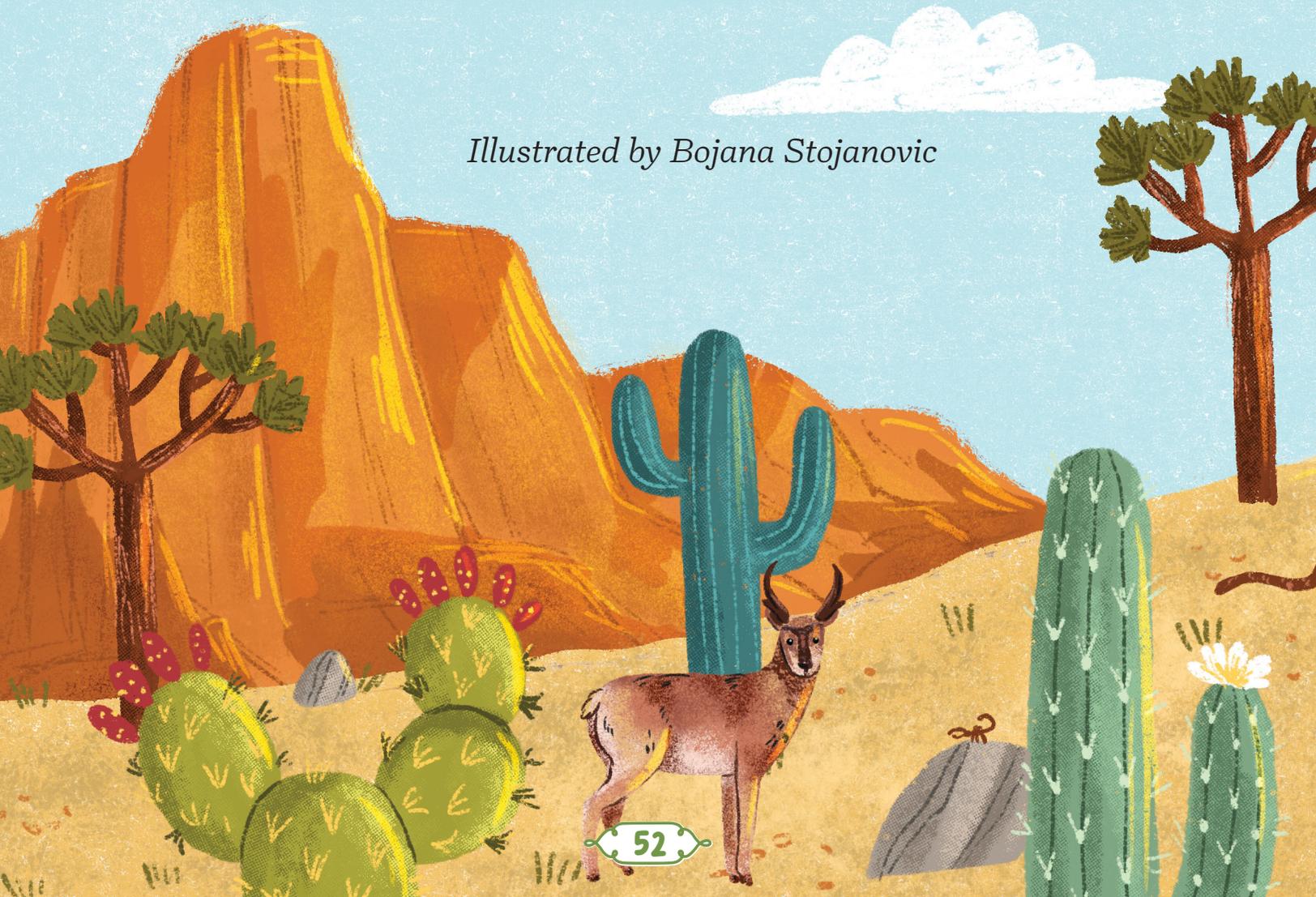




Desert Plants: Masters of Survival



Illustrated by Bojana Stojanovic

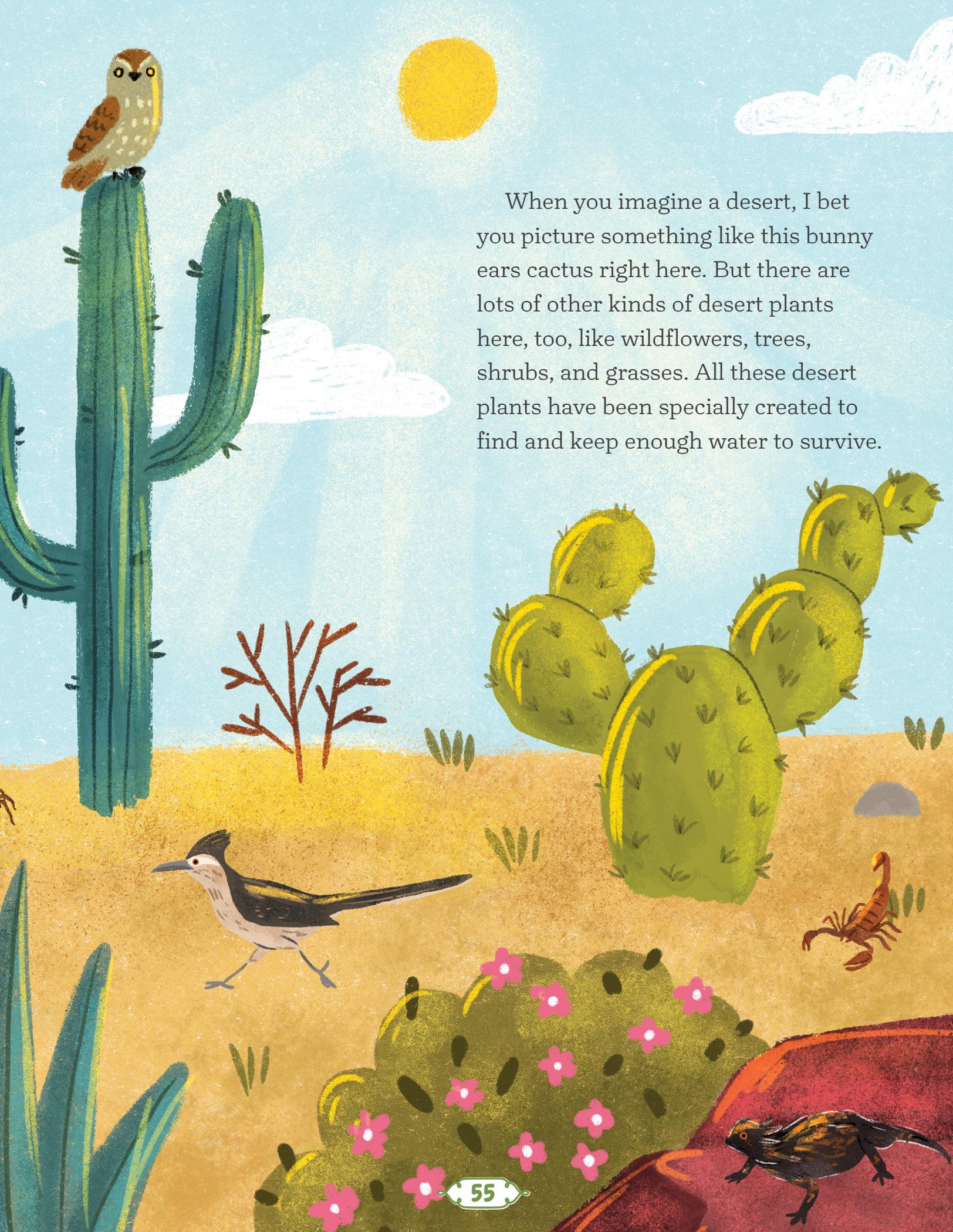




Howdy, folks! I'm Pokey Pete, the desert cowboy. I heard you're here to learn about plants that can survive in the desert. Well, you have come to the right place because those are my favorite kinds of plants. Here in the Arizona desert, we've got lots of plants to talk about!



What's a desert, you ask? It's an area of land that is sometimes covered in sand and is very, very dry. We only get about 25 centimeters (ten inches) of rain in a whole year! The days can get extremely hot, and the nights can get extremely cold. Plants that live out here are masters of survival!



When you imagine a desert, I bet you picture something like this bunny ears cactus right here. But there are lots of other kinds of desert plants here, too, like wildflowers, trees, shrubs, and grasses. All these desert plants have been specially created to find and keep enough water to survive.

Have you ever had a big problem to solve? I sure have lots of cowboy problems. Desert plants have problems, too!

First, they have to be able to catch the tiny amount of rainfall that comes each year.

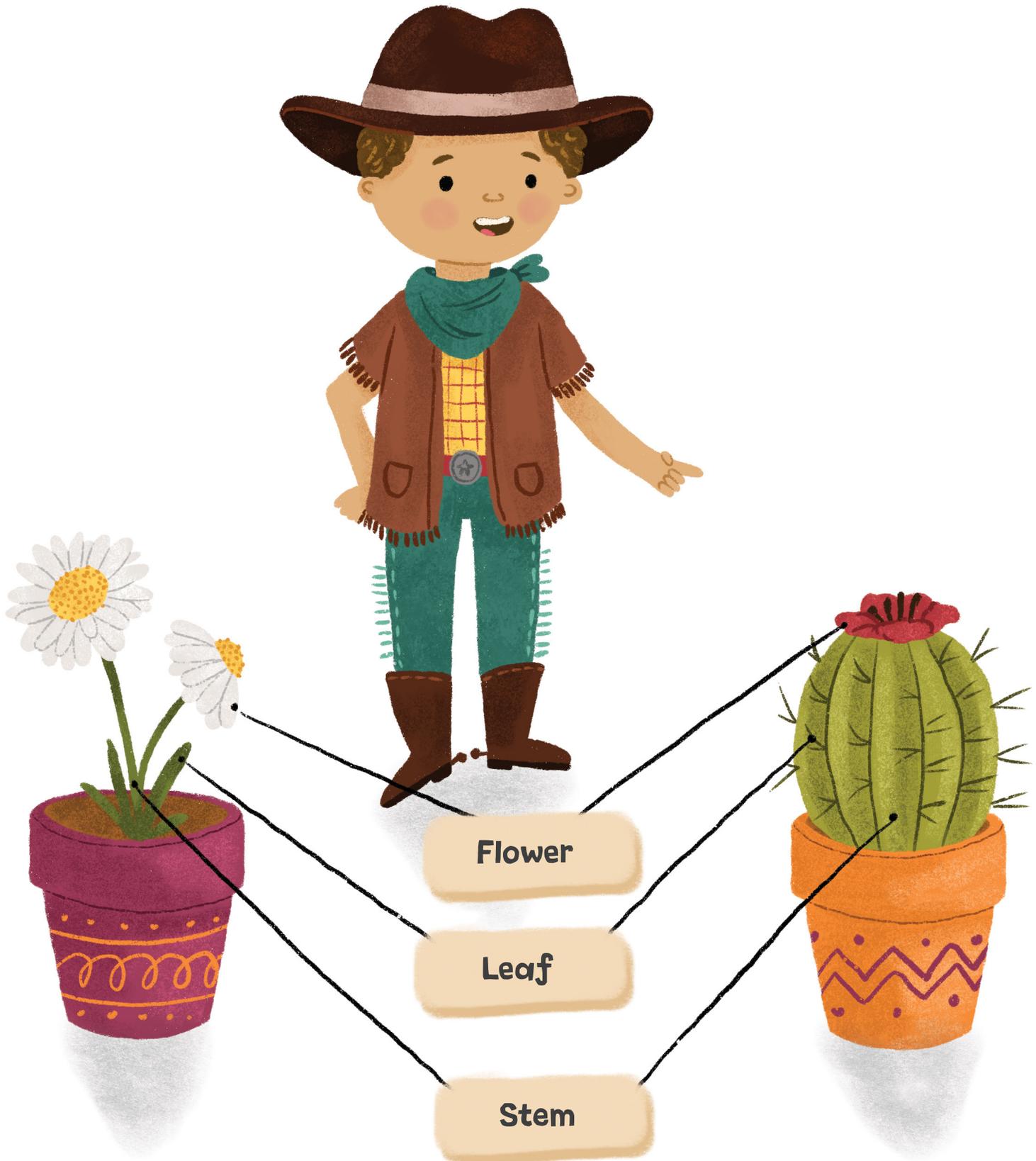


Second, desert plants need to store the water they catch so they can use it later in the dry season.



Third, desert plants need to choose the best time to make seeds and let them sprout into new plants.

Take a look at this daisy in the flowerpot. How does it look different from that barrel cactus in the ground?

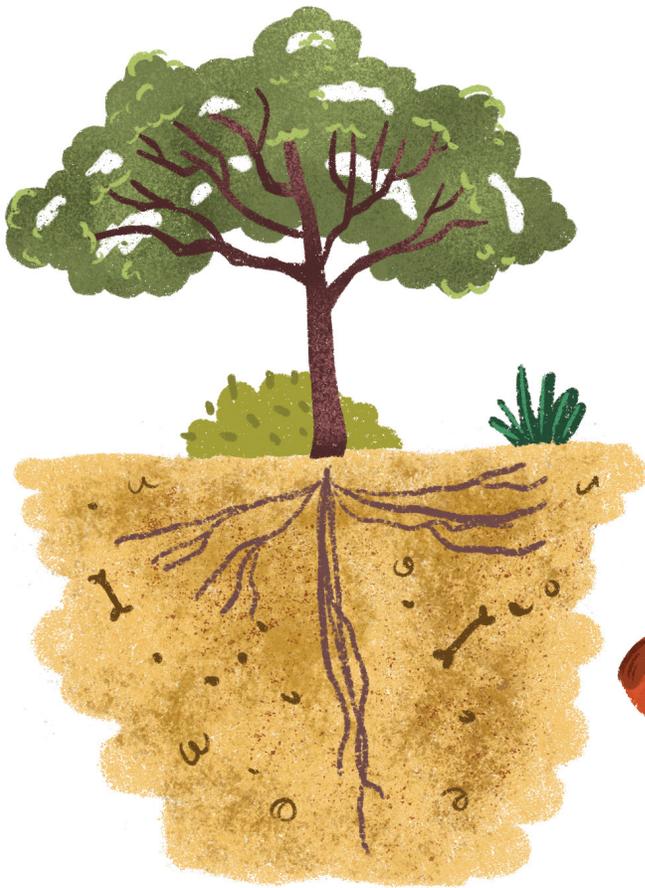


These desert plants are designed to be so resourceful! Take a stroll with me, and I'll show you all the ways they can catch every drop of rainwater that falls in the desert.

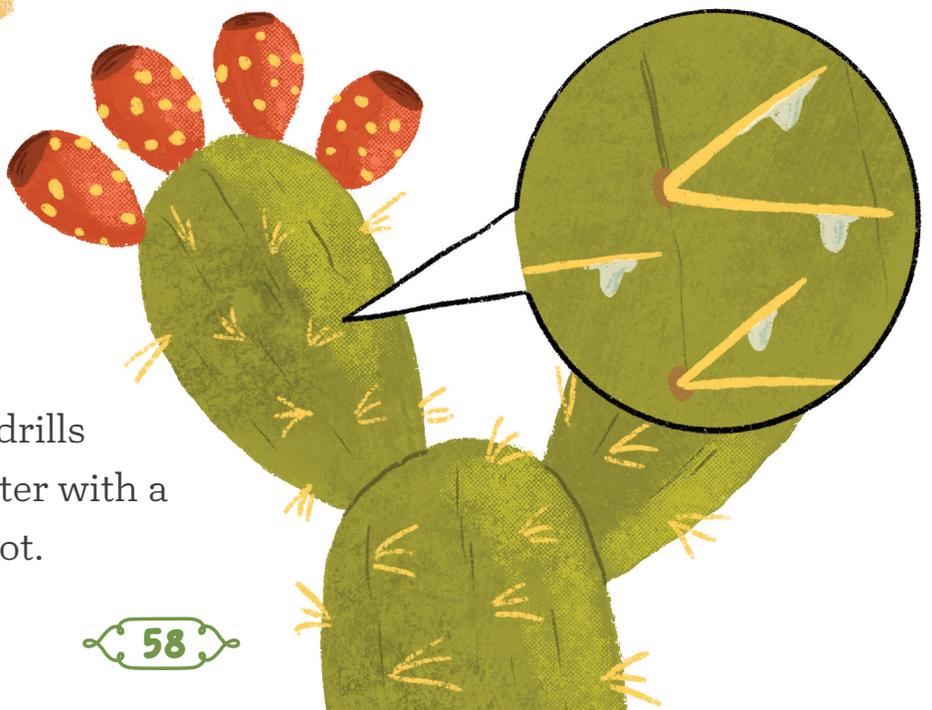
When it rains, the roots of desert plants need to catch the water quickly before it heats up and evaporates back into the air. This echeveria [eh-kuh-ver-EE-uh] plant grows roots that spread far and stay close to the surface. When the rain comes, the roots are ready and waiting!



This prickly pear cactus has spines that catch drops of rainwater or dew from fog. Then the water runs along the spines to the stem of the cactus and down the plant to the roots.



This desert mesquite tree drills deep underground to find water with a long, thick root called a taproot.



Wowee, that was quite a rainstorm! Now that the desert plants have caught some water, they need to store it. Soon it will be the dry season here, and it might not rain again for months or even years!

Can you guess where this swollen succulent is storing its water? If you guessed the part that looks like a big ol' water balloon about to pop, you're slap-bang correct! That puffy area on the golden pincushion cactus is actually its stem, and that is where it stores water.





Desert plants other than succulents can be clever, too. This desert marigold lives only when there has been enough rain and warmth. It sprouts, grows into an adult plant, spreads seeds, and dies, all within a few months. The seeds from these annual (once a year) flowers can wait years for another rainy season to come along. When it does, they will spring into life once again.



Let's mosey through this patch of colorful flowers. I betcha didn't think there would be this much color in the hot desert, did you? I'll tell you one reason they are so noticeable—bees, bats, and other pollinators! Desert plants have to grow very bright flowers so that the bees and other insects notice them and gather their pollen. Which flower is your favorite? I love the bright pink flowers on the spiny pincushion cactus!

All cacti are succulents, but not all succulents are cacti. Did I make you plumb confused? I'll explain. Succulents are a big family of desert plants, and cacti are one kind of succulent. Usually cactus plants are the ones with spines. Here's a piece of good advice, straight from ol' Pokey Pete: never squish a cactus. Ouch!



Cactus spines protect the cactus from animals trying to steal water (and people trying to sit on them), but they also help with catching water and providing shade for the plant and its roots.

Desert plants provide food and shelter for desert animals. This giant saguaro [suh-GWA-row] cactus is positively crawling with critters. It's tall enough that even I, Pokey Pete, could make a nest inside it to live in. This saguaro is about 150 years old, and some are even older!

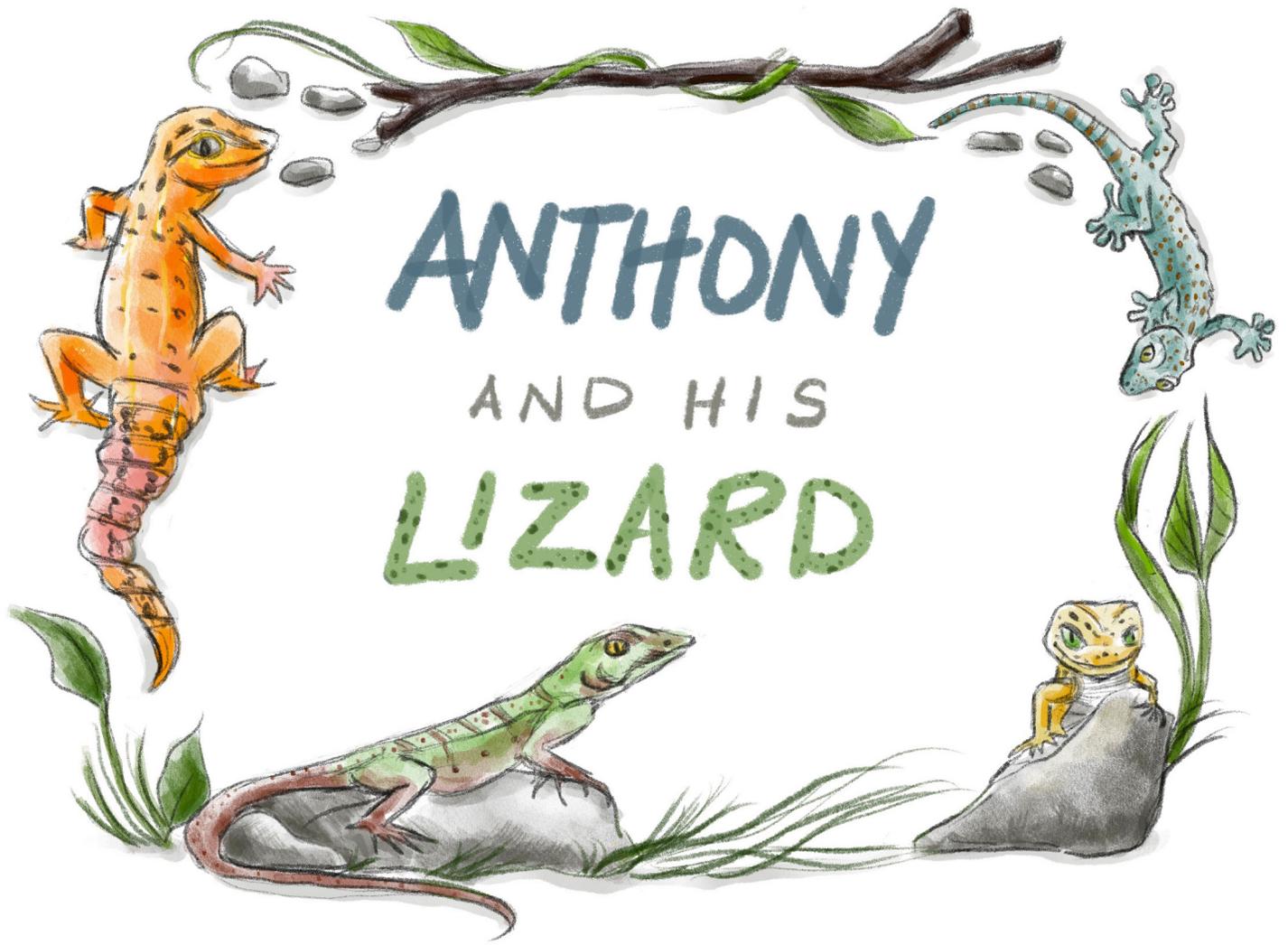


Here are more hardy desert plants you can take a gander at as the sun goes down in the desert. It's been a knee-slapping good time showing you how these amazing desert plants can live in the harshest weather.





It's time for me to be heading on home for dinner, lickety-split. Thank you kindly for taking a few minutes to learn about the plants in my desert home. Come on back anytime!



ANTHONY
AND HIS
LIZARD

Illustrated by Shannon Vogus





Anthony quickly shut the door of the car and jumped up and down on the sidewalk. "Let's go, Dad! I can't wait!" Anthony said as Dad walked towards him. "I'm excited to get a new pet!"

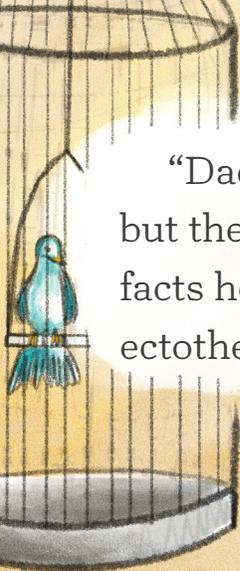




Anthony bounced on his toes as he pushed the door of the pet shop open and went in. He had worked so hard to save money to buy a pet of his own.

Anthony looked around with wide eyes. He saw rows and rows of tanks filled with sand, rocks, plants, and the animals Anthony was so excited about—lizards!

“Dad, did you know that lizards are reptiles? They’re related to snakes, but they’re not the same thing.” Anthony kept talking, spouting all the facts he knew. “Lizards can’t make their own body heat. It’s called being ectothermic. So we’re going to have to get a heat lamp for my new pet!”



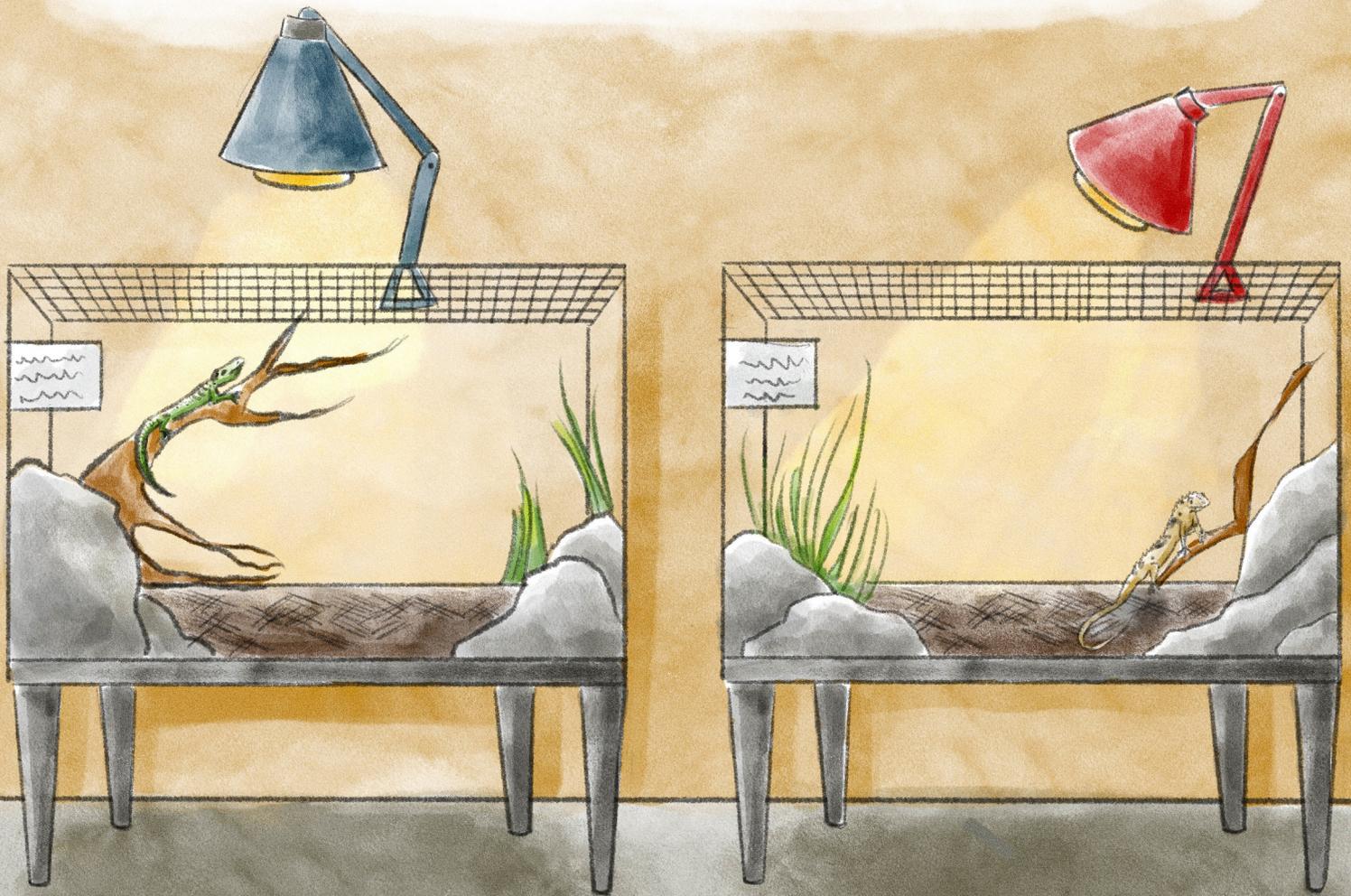


“Yes, we will, son,” Dad said. “Wow, look at how rough and scaly this lizard’s skin is. I always thought their heads were bigger. They’re pretty small, and their legs are a lot longer than I expected.”

Anthony walked along the rows of tanks, looking at every detail of the lizards in each one. He stopped in front of a tank labeled “blue-tongued skink” and read from the fact sheet.



“Skinks smell with their tongues, and their ears are just holes in their heads. Wow, that’s really interesting!” The skink’s long, blue tongue flicked out as Anthony moved on to the next tank.

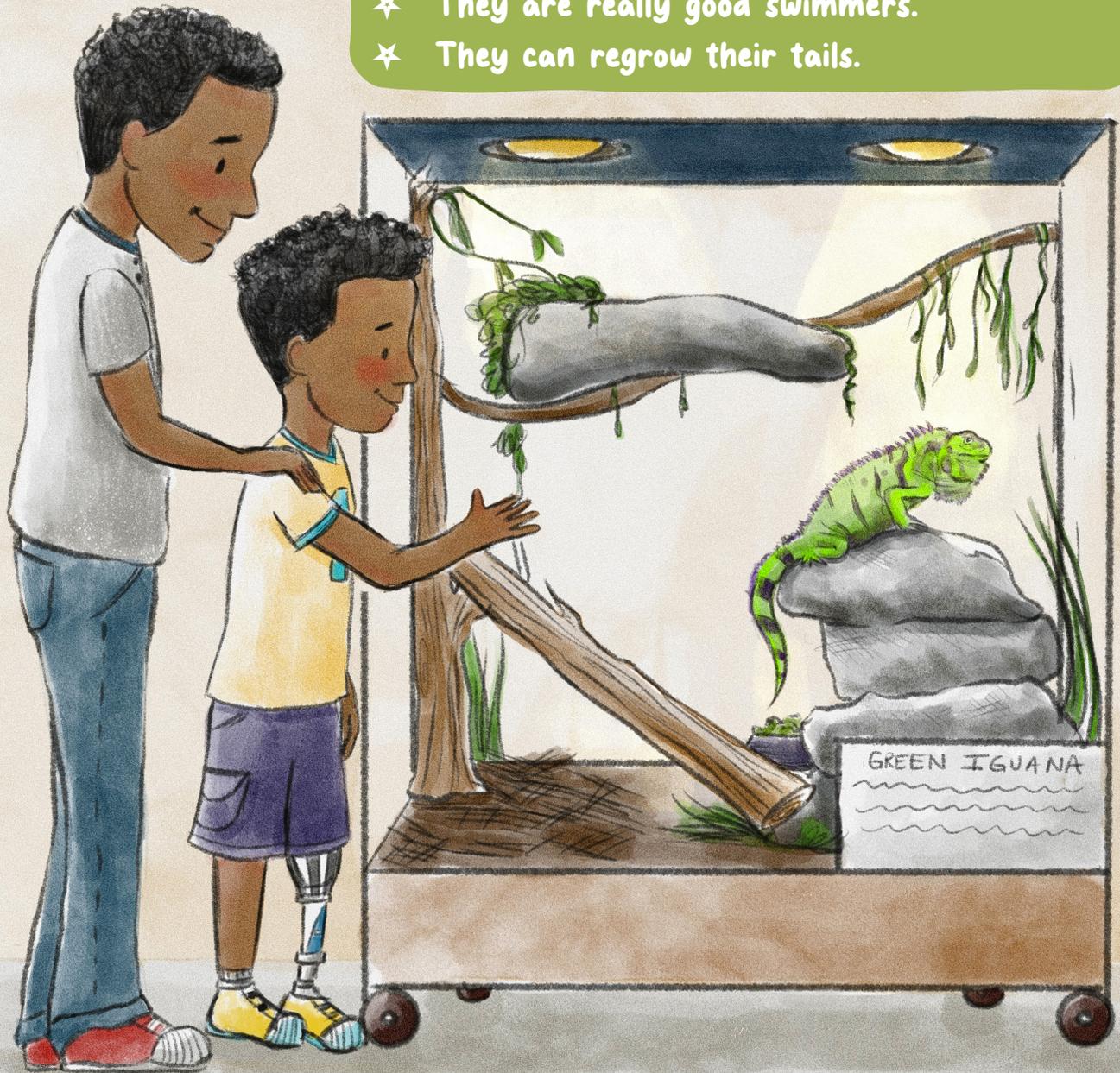


Blue-Tongued Skink Fun Facts

- ✧ They use their bright-blue tongue to warn predators to stay away.
- ✧ They can live up to 30 years.
- ✧ They do not lay eggs.

Green Iguana Fun Facts

- ✧ They live in trees and can survive falls from very high.
- ✧ They are really good swimmers.
- ✧ They can regrow their tails.



“Dad, look here!” Anthony waved his dad over to a big tank with a bright-green lizard sitting on a rock. “This is an iguana. They’re not actually very good pets. They can get so big, like 2 meters (6.5 feet) long, and they don’t like to be held. Also, they have to live in super hot and wet tanks. I don’t have iguanas on my list of pets that I want, but look how beautiful and interesting he is.”

At the next tank, Anthony asked Steve, the pet shop owner, “Why does it look like there are two lizards in this tank?”

“Well, this lizard must have just molted. A lizard’s skin is dry and scaly, and it doesn’t grow when the lizard grows. So, lizards grow a new layer of skin under the old layer. When they’re too big for the old layer, it comes off. This is called molting. Are you interested in having the chameleon for a pet?” Steve asked.



Chameleon Fun Facts

- ✧ They can change the color of their skin to blend into their environment.
- ✧ Their eyes can focus on different things at the same time.
- ✧ They do not have ear openings.

“No, thank you, sir. I have a different pet lizard in mind!” Anthony answered as he bounced to the next tank.

“Oh, wow, Dad! You have to come see this one!” Anthony was standing on his tiptoes to look down into a large tank. “This bearded dragon laid eggs.”

“Neat!” Dad said. “Those eggs look like they would be soft to touch.”





“They are,” Anthony answered. “Lizard eggs are usually soft and leathery. Did you know that the males do all kinds of dances and show their vivid colors to get female lizards to like them?”

Dad nodded. “I think I read that somewhere. I also read that lizard babies are born knowing how to take care of themselves.”

“So,” Dad said to Anthony as they got to the back of the pet shop, “have you found your perfect lizard pet yet?”

“I think so. I did a lot of research on this little guy right here.” Anthony pointed at the last tank in the row.



Inside was a lizard that had spots like a leopard! “It’s called a leopard gecko, Dad. They normally live in the desert. They are gentle, they don’t need a very big tank, and they eat crickets and mealworms. We can grow those ourselves or find them outside. I have saved enough money for him. May we buy him, Dad?” Anthony looked at his dad with big, pleading eyes.

“Absolutely. Let’s talk to Steve to make sure we get everything we need for him. What are you going to name him?” Dad gave Anthony a high five as they walked to the front of the store.



“I think I will call him Spots,” Anthony said, picking up a heat lamp from a shelf. “I am so excited to bring Spots home!”

“Well, you sure are going to give him the best home. I know you’ll take good care of Spots,” Dad said. Soon they were walking out of the pet shop with the leopard gecko in a box, ready to go to its new home.



With engaging, wonderfully illustrated stories that bring the topics to life, *Little Hearts and Hands: Fields and Flowers* is a gentle introduction to the study of science for children in preschool through first grade.



Lucia notices trees that still look just as awake and alive as they did in the summer. The trees in her yard at home have lost their leaves and look like they're asleep. "Papa, why are these trees still green?" Lucia asks, gently touching a tree.



"Let's mosey through this patch of colorful flowers. I betcha didn't think there would be this much color in the hot desert, did you?"



"There it is! There it is!" Ruby exclaimed as she got up from the ground and pulled Jess up, too. "The meadowhawk butterfly! I know it's a meadowhawk because it's red like a fire truck."




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