Core Knowledge® Science

Plant and Animal Survival

eating food

animal parts

plant survival

parents and young

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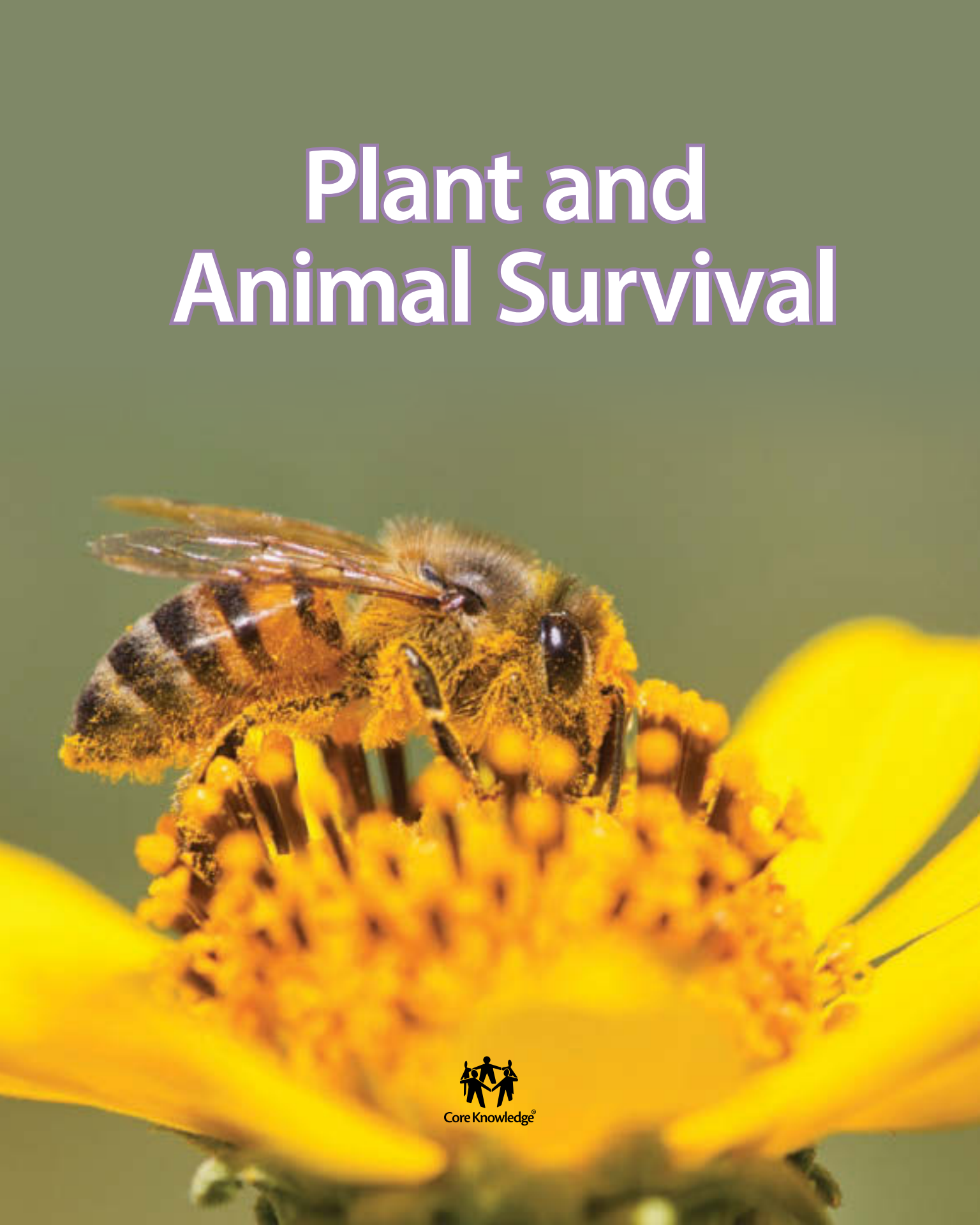
Plant and Animal Survival



Core Knowledge®

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Plant and Animal Survival

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CHAPTER
1

Luzi Saves an Owl

Luzi lives in the Sonoran Desert in Arizona. It is a hot, dry place. She hikes there with her family every Saturday.

One spring day, Luzi finds a small owl sitting on the ground. It has soft, white feathers mixed in with brown and gray ones.

Luzi bends down to look at the owl. It raises its wings. It bobs its head. But it does not fly away. Luzi is worried. She thinks it might be hurt.

Luzi's mother decides they should take the owl to a veterinarian. Dr. Moreno is the animal doctor who cares for Luzi's dog and cat.

Dr. Moreno checks the owl's legs and wings. She smiles and tells Luzi, "This little owl is not hurt. It is just too young to fly. It is a baby great horned owl. It probably fell from its nest."

Luzi thinks about where she found the owl. She saw a large saguaro with a hole in it. A woodpecker flew out of the hole. Luzi wonders if owls make their nests in saguaro cactuses.

“What do we do now?” Luzi asks. “Should we take it back to the desert?”

“No,” says Dr. Moreno. “We are not sure where its home is. Other animals might hurt an owl this small. We will take it to a place where humans can care for it. It can stay there until it learns to fly and hunt for food. Then we can return it to the desert to make a new home when it can take care of itself.”

Dr. Moreno takes the owl to a place called the Desert Wildlife Center. Luzi and her mother go to see where the owl will be cared for. There are other animals there. Luzi sees a desert tortoise and a gray fox. She even sees a tarantula!

Most of the animals have been rescued. Some of them had been hurt. People now care for them while they heal. Some young animals were separated from their parents. People are taking the place of their parents until these animals grow up enough to survive on their own.

gray fox

desert tortoise

tarantula

The workers show Luzi how they will care for the owl. They show her another owl that is almost old enough to be released back into the desert! It will practice flying in the big yard. It must learn to eat food that it will find in the desert.

They ask Luzi if she would like to be a volunteer at the center. She will learn how to help take care of the animals there. Luzi says yes. She is excited to help!

CHAPTER
2

What Parts Do Animals Have?

Workers at a wildlife center like the one caring for the owl Luzi found must know a lot about animals. Some animals that need help can't take care of themselves because they are hurt. Others can't take care of themselves yet because they are too young.

Wildlife caregivers must know what animals need to live. They must know what the animals eat. They must know how the animals move around. The workers use what they know to care for the animals. In this picture, a wildlife caregiver feeds a baby sloth.

All animals have parts. These parts have different purposes. Some parts help an animal find and catch food. Some parts help an animal move from place to place. Some parts help an animal breathe. All of an animal's parts help it grow and survive.

Wings, legs, and eyes are some owl parts. This is an adult great horned owl. What do its parts help it do?

Most animals must move to stay alive. Some animals run. Some animals swim. Some animals hop from place to place. Animals have parts that help them move. The owl that Luzi found in the desert has wings. Wings enable birds to fly.

Fish have parts that help them swim.

A jackrabbit has parts that help it hop quickly in the desert.

A cheetah has parts that help it run fast.

Animals must eat to stay alive. They have parts that help them get and eat food. Some animals have bills that help them eat berries, nuts, and seeds. Some animals have sharp teeth that help them tear and eat meat. Some animals have long tongues that help them catch insects.

A bird's beak helps it gather seeds and berries.

A frog catches insects with its tongue.

Animals must get oxygen to stay alive. Some animals have parts that help them live and breathe on land. Some animals have parts that help them live and get oxygen that is in water. Some animals can live and breathe both on land and in the water! Sharks have parts that help them get oxygen underwater. Salamanders can breathe in oxygen on land and get oxygen from out of the water!

What parts do these elephants have? What do those parts do that helps the elephants survive? Think about your favorite animal. How does it move? How does it eat? How does it breathe?

CHAPTER
3

What Parts Do Plants Have?

Animals have parts that help them grow and survive. Plants have parts that help them grow and survive, too. Plants can't move like animals can. But plants can get water and sunlight. Plants can get air. Plants have seeds. Some plants can even "eat" other living things!

The desert marigold has parts that help it get what it needs.

Plants must get water to stay alive. They have parts called roots that take in water. A plant's roots grow under the ground. Roots can be long or short. They can be thick or thin. They can grow deep into soil or stay close to the surface. But they all help a plant get the water it needs to survive.

This prickly pear cactus lives in the Sonoran Desert. Its roots are short and close to the surface. They can take in water right after a short rainfall.

You can see the roots of this fallen tree, which grew deep into the soil.

When roots take in water, where does it go? It moves through a part called a stem. A stem helps get water to the plant's other parts. It also helps hold a plant upright. Stems can be thick or thin. They can be hard or soft.

A tree trunk is a kind of stem. It is thick and rough.

This desert plant has many stems.

Plants need sunlight to stay alive. Leaves are the part of a plant that take in sunlight. They use sunlight and water to make food for the plant. Leaves come in many shapes and sizes.

Plants in shady places often have large leaves so they can take in more sunlight.

Colorful flowers are probably the first thing you notice about a plant. Insects notice flowers, too! They land on the flowers. They pick up pollen with their legs and wings. Then they carry it to other plants. This pollen is necessary for plants to make seeds. Seeds grow new plants.

Can you see the yellow pollen on the bee's body?

Seeds fall to the ground. New plants grow.

Plants can't bite or chew like animals can. But did you know that some plants can still "eat" other living things? An insect lands on the plant. It smells something sweet and crawls inside. Then the plant snaps shut! The Venus flytrap closes to trap insects. The plant then gets some of the nutrients it needs to survive.

A pitcher plant traps bugs in a leaf that is a tube.

These plants are unusual. Most plants do not consume animals in this way.

CHAPTER
4

How Do Animals Use Their Senses?

Animals need to move, eat, and breathe to stay alive. Animals also need to stay safe. Animals use their senses to take in information about their environments. An environment is where a plant or animal lives. Animals also use their senses to find food.

Did you know a snake uses its tongue to smell?

Most animals use their eyes to see their environments. But some animals don't have eyes or cannot see well. They must use other parts to detect what is around them.

Bats send out sound waves. They sense how the waves bounce off of things around them. This is how they find food. It also helps them detect threats.

A star-nosed mole's eyes do not see well. But it has a nose to feel its surroundings. It can touch twelve objects in one second!

An eagle has large eyes and excellent sight. It can see food from almost two miles away.

Animals use hearing to stay safe and find food. Some animals have very large ears. They can hear things that are far away. Other animals do not have ears at all. They can feel when things move. They sense the air and the ground vibrate around them.

A fennec fox's large ears can hear food moving underground.

A drum fish has a sac filled with air inside its body. The sac shakes when other animals swim nearby.

Have you ever been bitten by a mosquito? Mosquitoes can find you because they smell your sweat or breath. Then, as they get closer, they can feel the heat from your body, too. Many animals rely on their senses of touch and smell to survive.

A snake smells with its tongue. It also has a part on its head that can feel heat.

A grasshopper has tiny hairlike parts all over its body. It can feel when the air around it moves.

Animals respond to what they feel, hear, and smell around them. What does an animal do when it senses danger? What does it do when it senses food?

An octopus squirts ink to escape from a threat.

An eagle spies a fish from the sky. It swoops down quickly to catch it.

An iguana feels that the sand in its nest is finally warm enough. Then it lays its eggs inside.

A scallop has many tiny eyes. It closes its shell and swims away when it sees a threat.

A cricket rubs its legs together to make a sound. The cricket's body has the most energy when it is warm. That is why you hear the most cricket chirping in the summer.

CHAPTER 5

How Do Plants Respond to the Environment?

You read about how animals use their senses. Plants cannot see, hear, or smell like animals can. But they do sense and respond to what happens around them. Plants sense and respond to light. They sense and respond to temperature. They sense and respond to water. Some even sense and respond to touch.

Plants need sunlight to grow and survive. Some plants need more light than others. Plants respond to light in many ways.

All plants use sunlight to make the food they need to grow.

Some plants turn themselves toward sunlight.

Some plants bloom based on the changing length of daylight.

Plants respond to how hot or cold it is outside.

Some plants wilt when it is too hot. Wilting makes a plant's leaves droop away from sunlight.

You sweat when you're hot. Plants release water through their leaves to cool off.

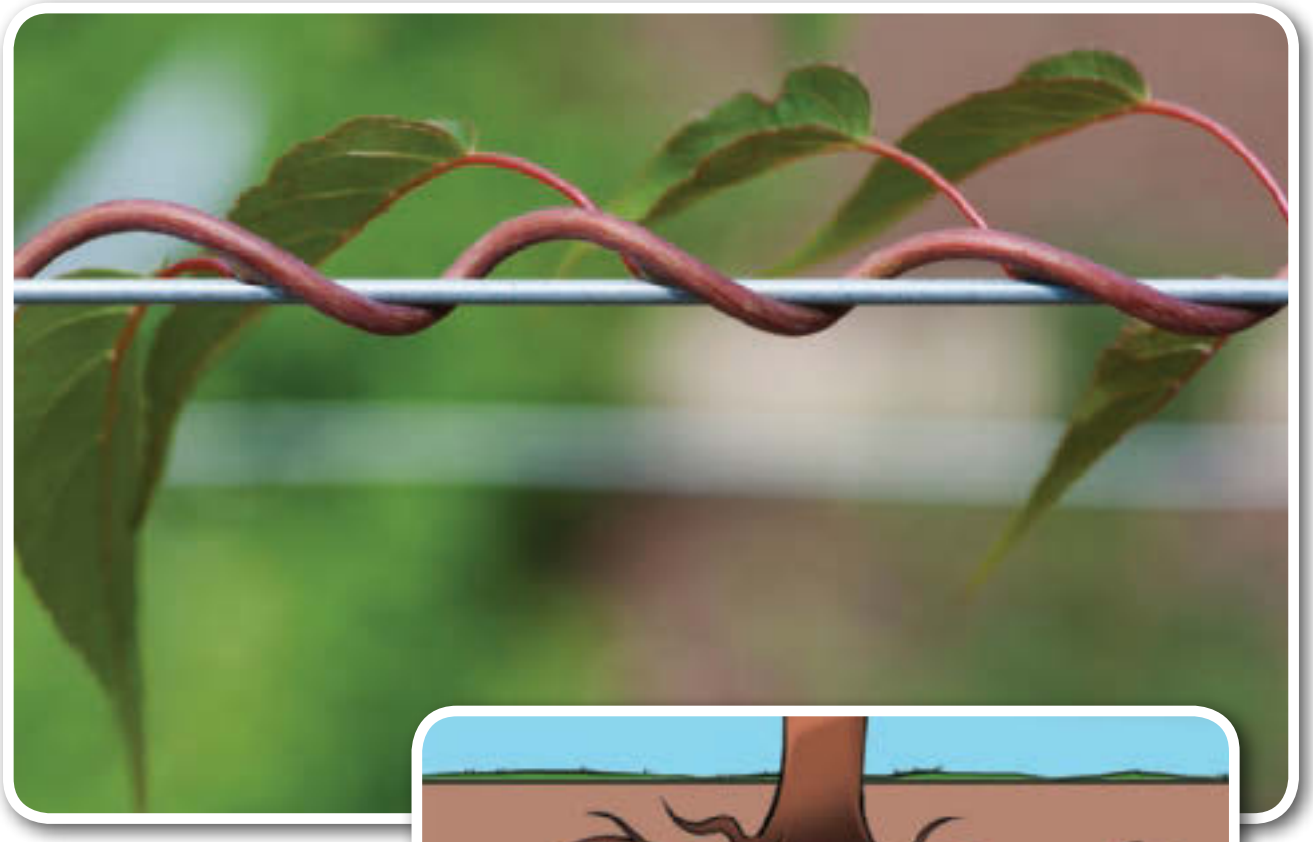
Many trees lose their leaves when it becomes cold in the fall and days have less sunlight.

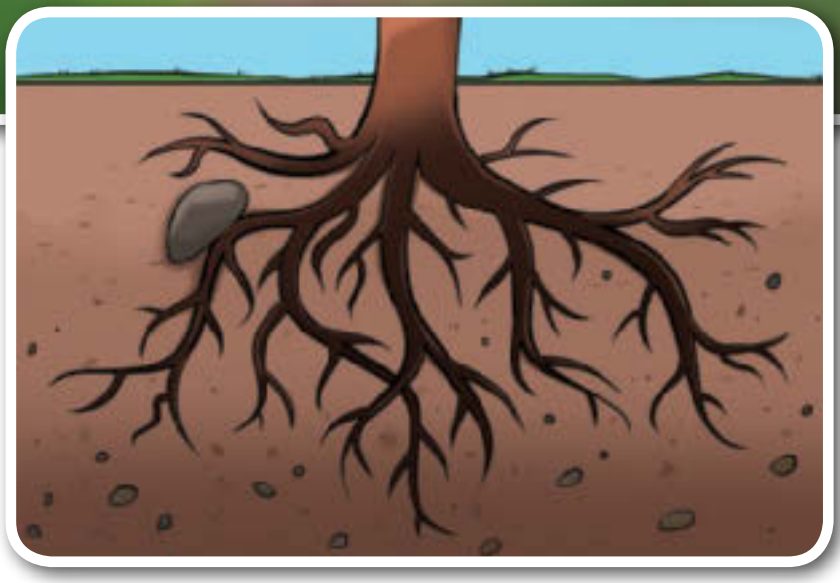
Plants need water to grow and survive. The plant here is standing up straight. It has enough water moving through its stems and leaves.

The plant here is wilting. Its stems and leaves have become soft and droopy. It needs more water.

Do you remember the Venus flytrap plant from Chapter 3? It has spiky hairs on the surface of its leaves. When something touches the hairs, the leaves snap shut. Plants respond to touch in other ways, too.

Some plants grow toward things that they touch. They can wrap around or climb objects that are nearby.





A plant's roots can grow away from rocks and other objects under the ground.

What are some plants around your home? You can observe them. You can see how they respond to sunlight. You can see how they respond to temperature. You can see how they respond to water. You can see how they respond to touch.

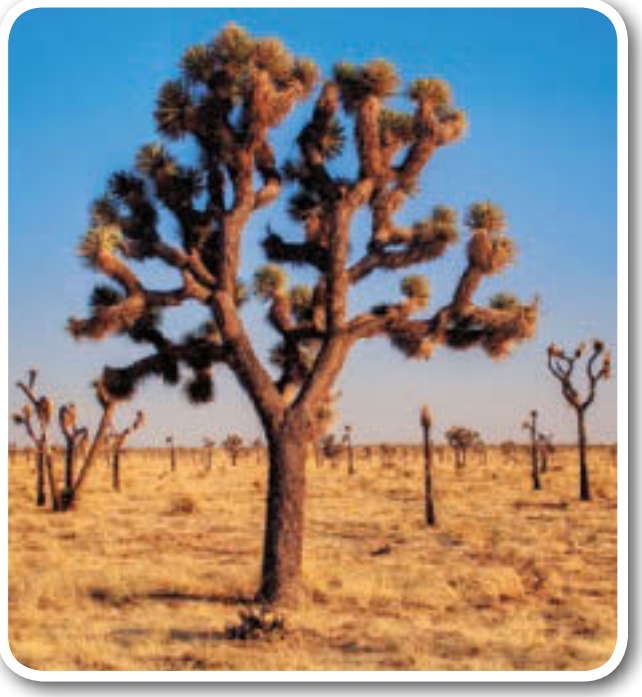
CHAPTER
6

Plants Are Alike and Different

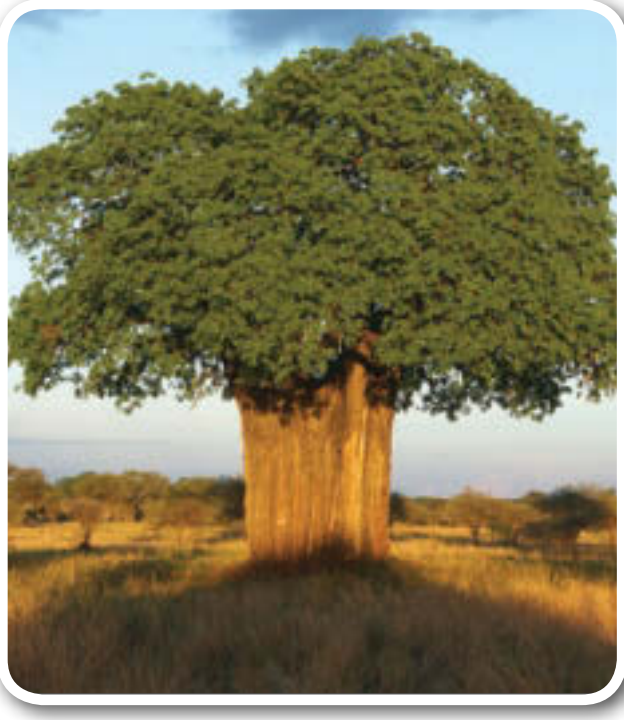
Remember the desert where Luzi was hiking when she found the little owl? One type of plant she saw there was a saguaro cactus. A saguaro cactus is green. It is prickly and tall. It has branches that look like arms. These are some of the traits of a saguaro cactus. Traits are how a plant or animal looks and acts.

You can tell types of plants by their traits. For example, trees are larger than most plants. They have trunks. They grow leaves from their branches. They spread out to capture sunlight.

How are these trees alike?



Tree are alike in some ways, but they are different in other ways. Some trees are tall and thin. Some trees are wide. Some are extremely tall. How are these trees different?



Offspring of living things get traits from their parents. They will look and act mostly the same. A young plant looks similar to its parent. But it looks different in some ways, too.

young tomato

adult tomato

How are these young plants like their parents? How are they different?

young sunflower

adult sunflower

CHAPTER
7

Animals Are Alike and Different

The Desert Wildlife Center caring for the owl Luzi found has a new bird! It is a cactus wren. The wren is brown, white, and gray like the great horned owl. It also builds its nest in a cactus. But this bird is not big like the great horned owl. It is so small that it fits in a person's hand.

How are birds similar and different? Animals of the same type can have many of the same traits. For example, most birds fly. All birds have feathers, wings, and beaks. All birds lay eggs. Sometimes it can be hard to tell birds apart.

How are these birds alike?

But birds can be different, too. Some birds are very small. Others are large. Some birds eat meat. Others eat seeds and berries, or drink nectar from flowers. Some birds make nests in the ground. Others make nests in trees and cacti. Different birds have parts that differ to help them survive in different places.

How are these birds alike and different?

Animals get traits from their parents. They look and act mostly the same. Baby animals become more and more like their parents as they grow.

Some types of baby animals look like their parents as soon as they are born. Other types of baby animals look different at first. They change as they grow. They start to look more like their parents.

Which of these baby animals look like their parents?

CHAPTER
8

How Do Adult Animals Care for Their Young?

Luzi enjoys helping at the Desert Wildlife Center. She is always excited to see the baby owl she rescued. Sometimes the owl is eating when she arrives. The workers at the center feed it with an owl puppet!

A wildlife caregiver explains to Luzi that the young owl needs food to grow. The little owl is more likely to take food from a puppet that looks like its mother or father. It is used to getting its food from a parent. Its parents cared for it while it was in the nest. The workers do not want to teach the owl that it gets food from humans. Adult owls catch food to feed its young.

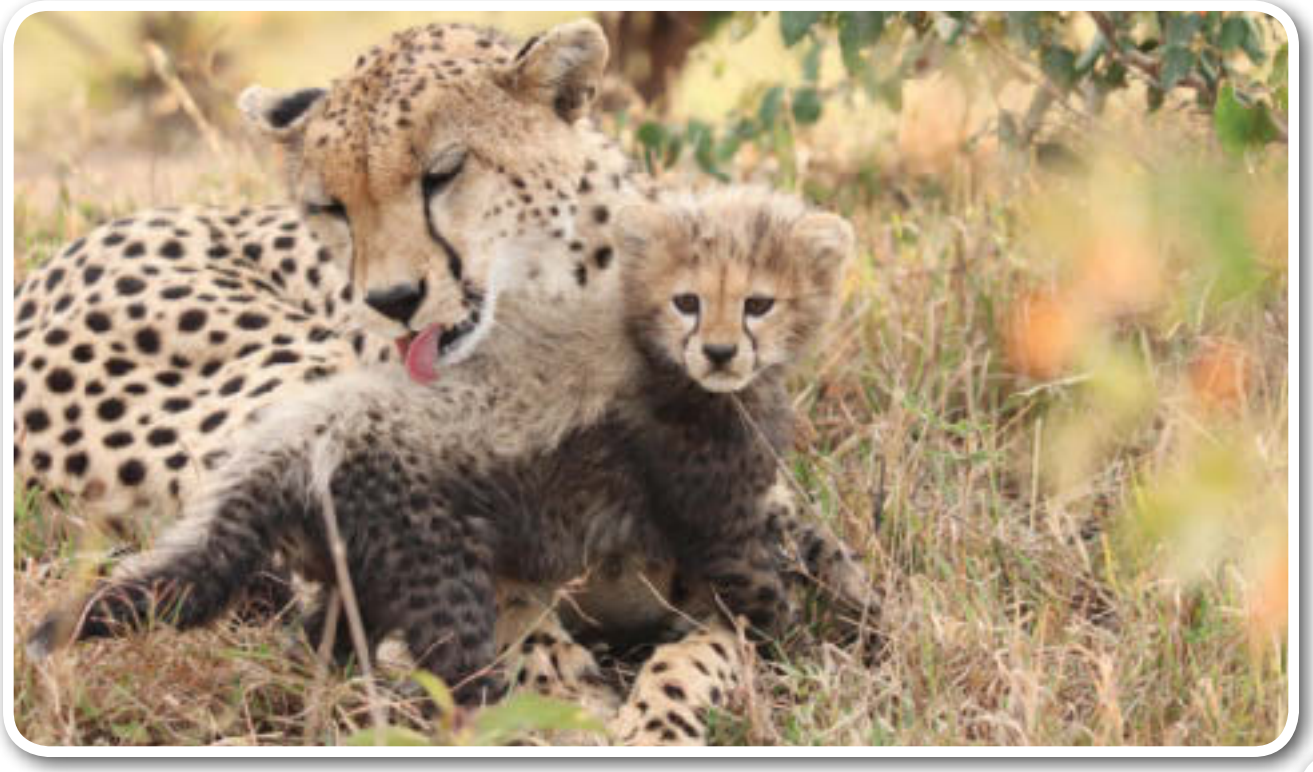
Living things can produce young. Many baby animals need help from their parents to survive. They are too young to find and catch their own food. Their parents help feed them.

A red fox mother's body makes milk for her young.

An adult penguin catches fish for its chick.

An Anna's hummingbird gets nectar from plants. It returns to the nest to feed the nectar to its offspring.

Adult animals also help their babies stay clean. An adult monkey picks bugs and dirt from its baby's fur. A mother cheetah licks its cub to help it stay clean.



Many baby animals are too young and too small to stay safe on their own. Their mothers and fathers protect them until they get bigger and stronger.

Adult crocodiles carry their babies in their mouths to keep them safe.

A mother kangaroo keeps her baby safe in a pouch on her belly.

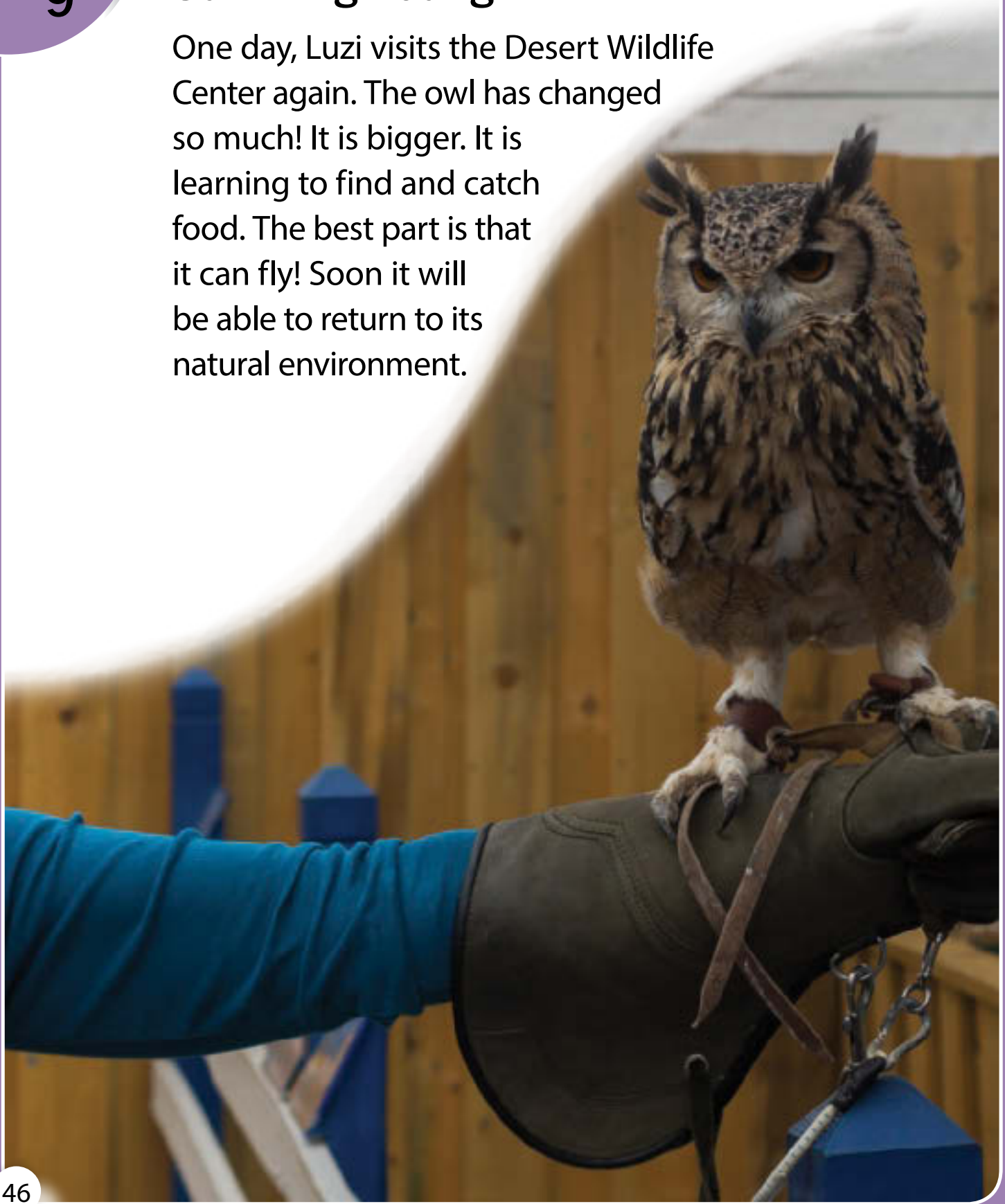
A group of adult elephants will surround a calf to keep it safe.

You were a baby once, too! Human babies need a lot of special care. Human babies cannot do anything for themselves when they are born. They cannot talk when they are born. They cannot move on their own. They rely on their parents for food and safety. Unlike most animals, humans stay with their parents for a long time.

CHAPTER
9

Surviving Young

One day, Luzi visits the Desert Wildlife Center again. The owl has changed so much! It is bigger. It is learning to find and catch food. The best part is that it can fly! Soon it will be able to return to its natural environment.



As baby animals grow, they learn to care for themselves. They can find food. They can avoid danger. They do not need their parents as much. Many baby animals can survive on their own after a few months. Some animals stay with their parents for many years.

A young white-tailed deer stops drinking milk from its mother after two months.

Baby monkeys begin to climb trees when they are very young.

Some baby animals do not need their parents at all! They are able to survive on their own from birth.

Most snake babies slither away to find food as soon as they leave the egg.

A baby brush turkey digs its own way out of the nest. It can walk, run, and fly right away.

Baby sea turtles know how to get to the ocean as soon as they hatch.

People in a wildlife center take care of animals in the hope that the animals can one day take care of themselves. Some animals that live with people will always need human care. Pets are different from wild animals. Both baby and adult pets depend on humans for food, water, and shelter. They might not survive on their own, even when they are fully grown.

Pets rely on humans for food.

Some pets rely on humans to stay clean.

When pets are sick, humans give them medicine.

Science in Action

Meeting an Ocean Naturalist

Luzi has been volunteering at the Desert Wildlife Center for many months now. Her owl friend has grown bigger and stronger. The naturalists at the center believe it is now ready to survive on its own!

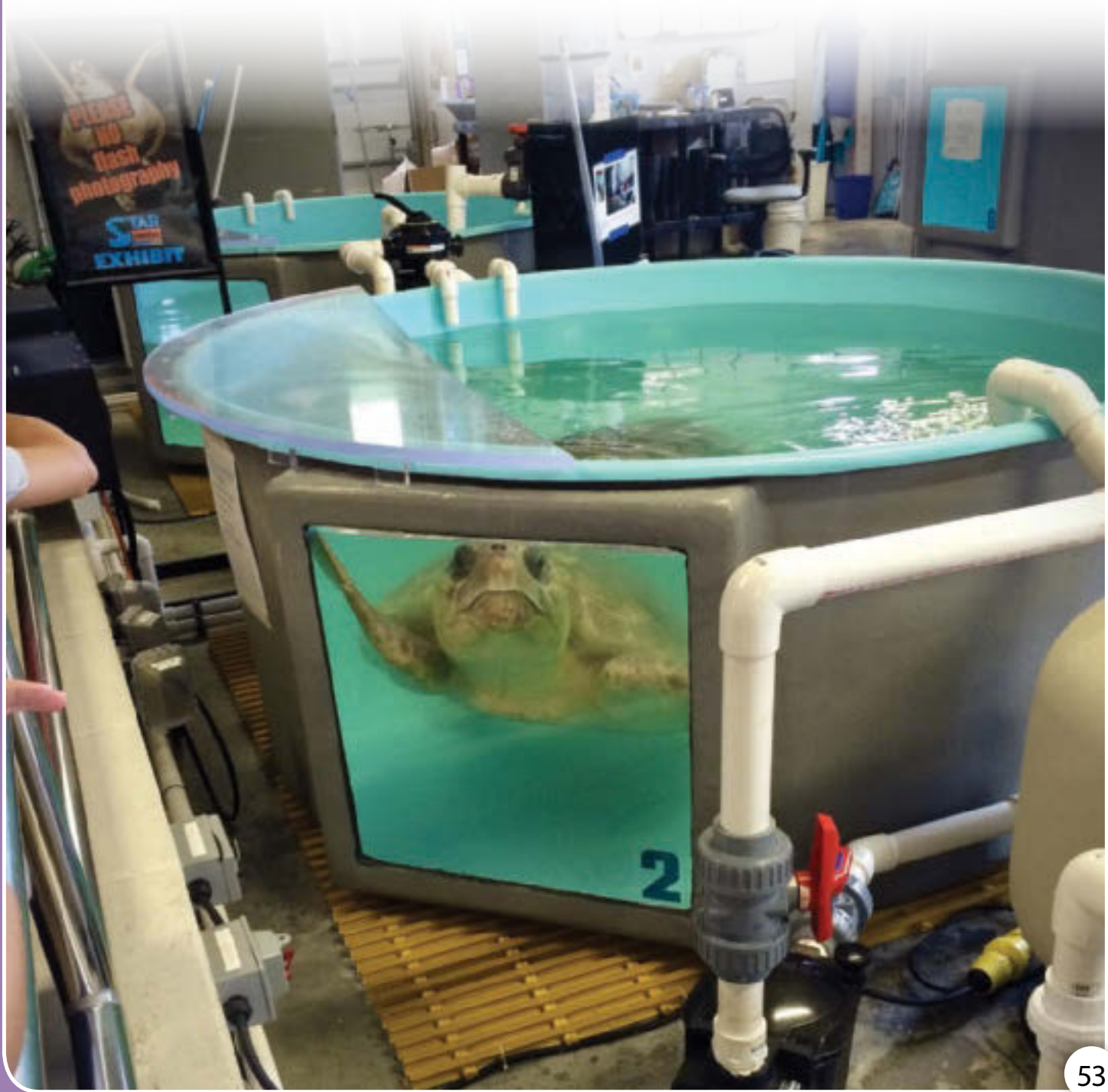
At school, Luzi shares her story about the owl. She tells her teacher and classmates about the people who helped her at the wildlife center. Luzi's teacher, Mrs. Croft, tells the class that the people who work at the Desert Wildlife Center can help desert animals because they know a lot about how desert animals survive.

Mrs. Croft tells her students, “We have been studying the desert. There are rescue centers where naturalists help hurt or orphaned animals in all kinds of habitats. I know an ocean naturalist who can talk with us about what he does to help marine wildlife. He helps ocean wildlife just like Luzi’s friends help desert animals.”

Today, Luzi's class has a virtual visitor. Mrs. Croft has set up a video call with an ocean naturalist named Josue. Josue works at a sea turtle rescue center. He helps sea turtles that have been injured.

Sometimes sea turtles can get caught in fishing nets or hit by boat motors. Sometimes turtles mistake plastic garbage in the ocean for food. They eat the plastic and get sick. If the turtles are hurt or sick, people take care of them in tanks at the rescue center until the turtles can survive on their own again.

Scientists at the sea turtle rescue center solve some problems to help the turtles survive. Scientists at the rescue center design and build tanks to hold the turtles in water. The water in the tanks must run through pumps and filters to keep it clean.



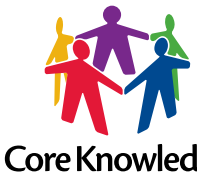
Josue learns a lot about sea turtles. One way he studies turtles is by observing them where they naturally live. But the sea turtles live in the ocean. How can Josue stay underwater to study the turtles? People need to breathe air to survive.

Josue is a trained diver. He uses scuba gear to breathe underwater. Josue tells the class that he uses breathing equipment invented by an ocean scientist named Jacques Cousteau. /zhahk*coo*stow/

"In fact," Josue says, "Jacques Cousteau inspired me to work to save sea turtles!"

Jacques Cousteau

Jacques Cousteau was a French scientist. He designed a breathing tool that allowed people to spend long periods of time underwater. Scientists used his invention to collect information from below the ocean's surface. Cousteau made underwater films about the ocean, too. He wanted to show people how human activities were affecting living things there. He inspired people around the world to care about the ocean and Earth's other environments, too.



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