Animals, Animals

A Science A–Z Life Series

Word Count: 60

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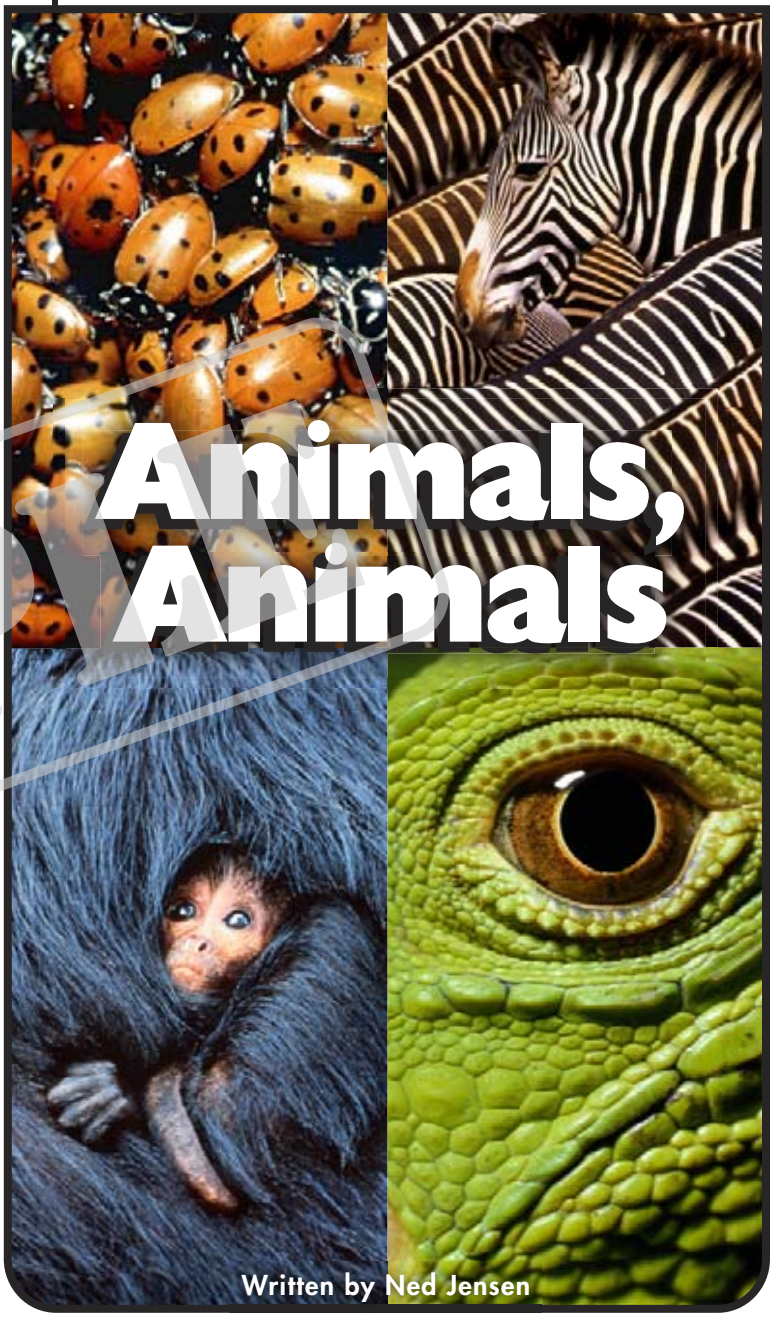

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Animals, Animals

Written by Ned Jensen

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KEY ELEMENTS USED IN THIS BOOK
The Big Idea: Understanding the diversity among animals helps us appreciate and enjoy the uniqueness of all creatures. We may also think about how we treat animals and how we as humans fit into the animal kingdom.
Key words: alike, animals, different, eat, grow, live, move, parts, same, sizes **Key comprehension skill:** Compare and contrast *Other suitable comprehension skills:* Main idea and details, Make inferences, Author's purpose **Key reading strategy:** Connect the text to prior knowledge *Other suitable reading strategies:* Ask and answer questions, Retell and summarize

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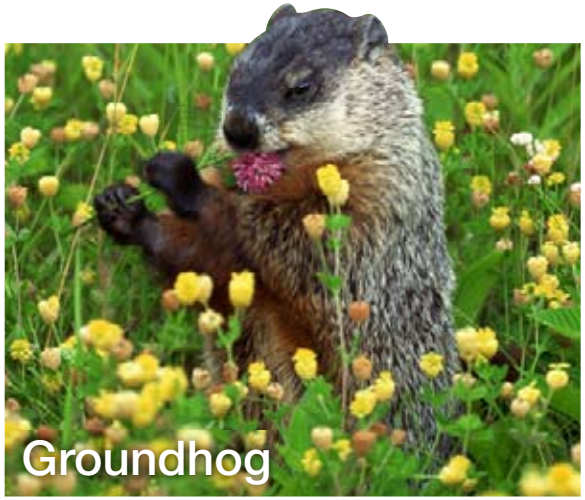
Animals are the same in some ways.

In some ways they are different.

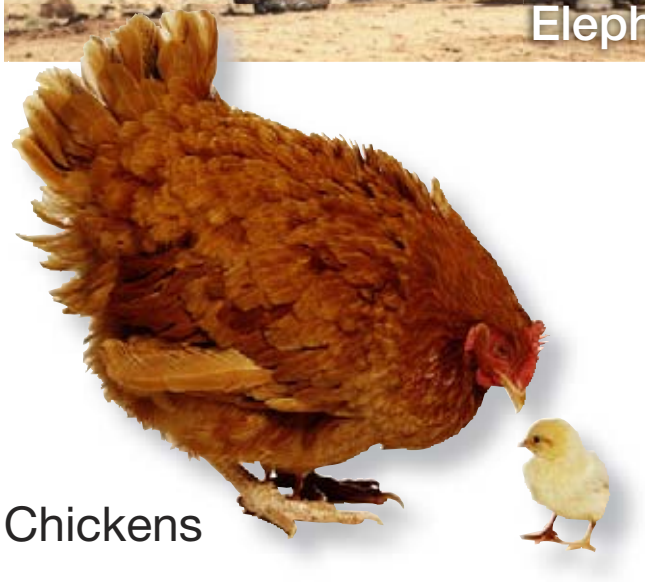
All animals move.

Animals move in different ways.



All animals eat.

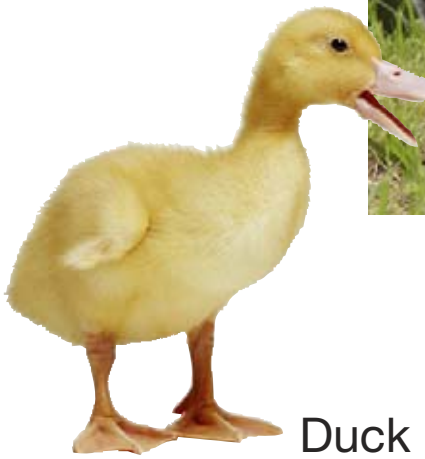
Animals eat different foods.



All animals grow.

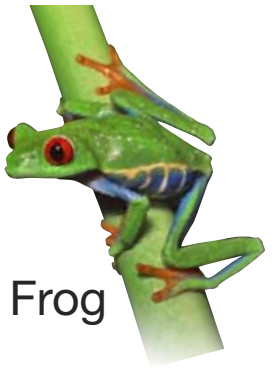
Animals grow to be different sizes.

All animals need a place to live.
Animals live in different places.



All animals have parts.
Animals have different parts.

How are these animals different?



How are these animals alike?

Animals, Animals

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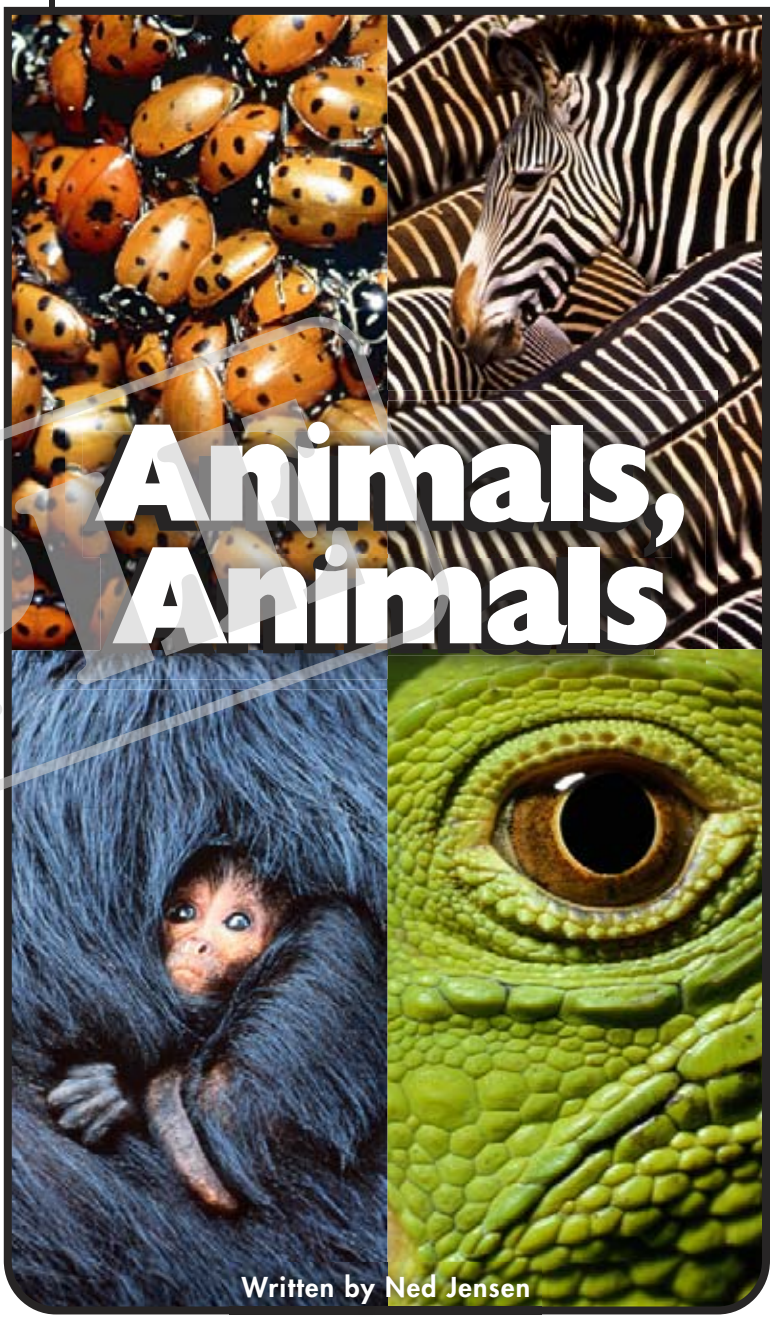

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Key words: air, animals, babies, body, body coverings, cold, color, different, dry, feathers, food, fur, grow, hot, human, land, parents, plants, scales, shell, size, skin, water, wet **Key comprehension skill:** Compare and contrast *Other suitable comprehension skills:* Main idea and details, Make inferences, Author's purpose **Key reading strategy:** Connect the text to prior knowledge *Other suitable reading strategies:* Ask and answer questions, Retell and summarize

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Eggs in nest

Deer

Basset hound

Animals are everywhere.

What do animals need?

How are animals different?

Zebras

Horse and foal

Animals are living things.

They can move.

They eat and grow.

They can have babies.

Giant panda


Leopards

Animals need things to live.

They need a place to live.

They need food and water.

They need air.


Honey bees

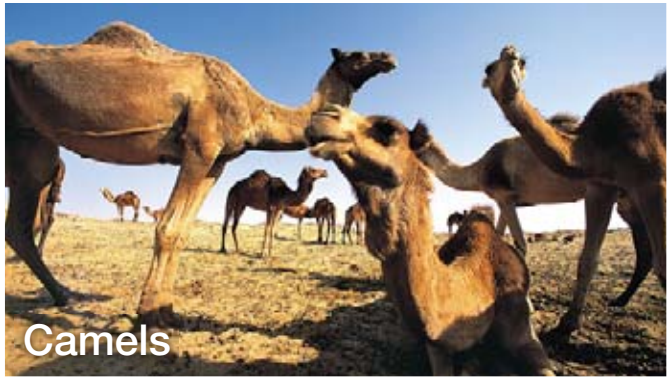
Animals live in many places.

They live on or in land.

They live in water.


Prairie dogs


Dolphins



Camels

Some live where it is hot.

Some live where it is cold.

Some live where it is dry.

Some live where it is wet.

Emperor penguins

There are many animals.

They can be big or small.

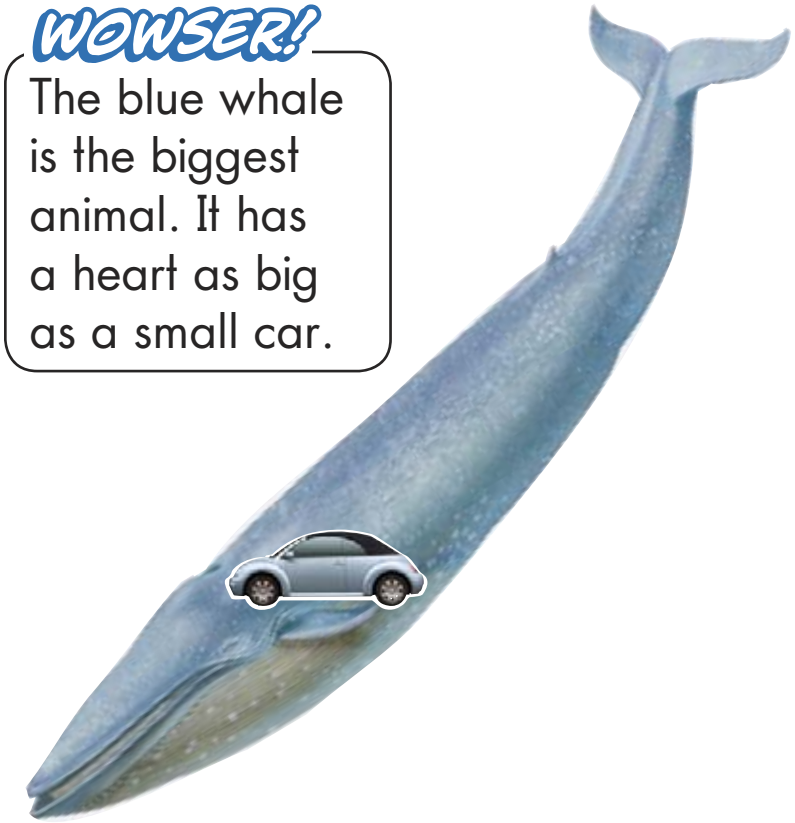
They can be tall or short.

They can be one color.

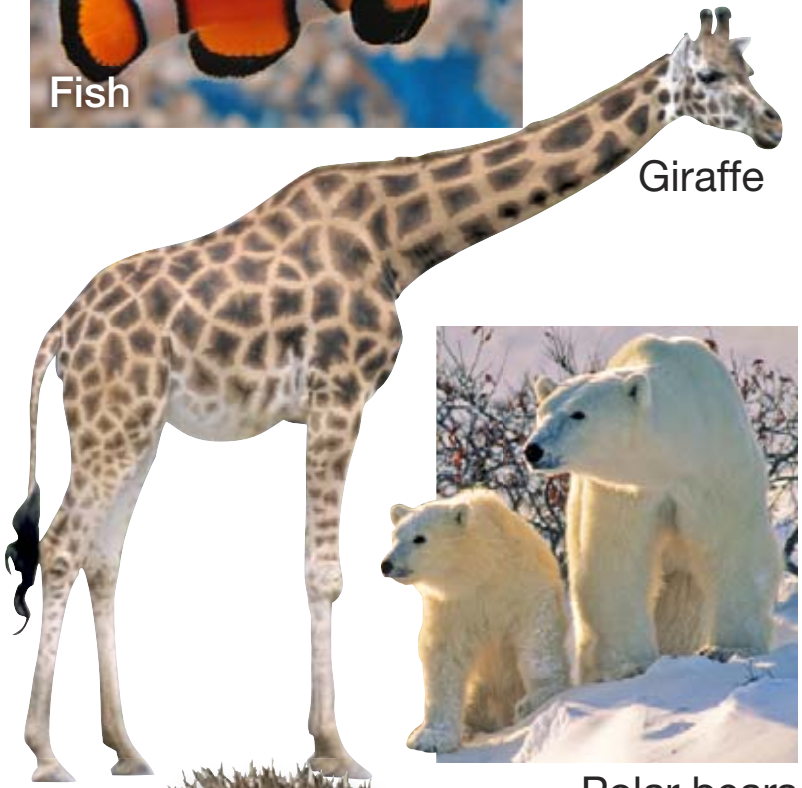
Or they can be many colors.

WOWSER!

The blue whale is the biggest animal. It has a heart as big as a small car.



Fish



Giraffe

Polar bears

Hedgehog

Monkeys (fur)

Owl (feathers)

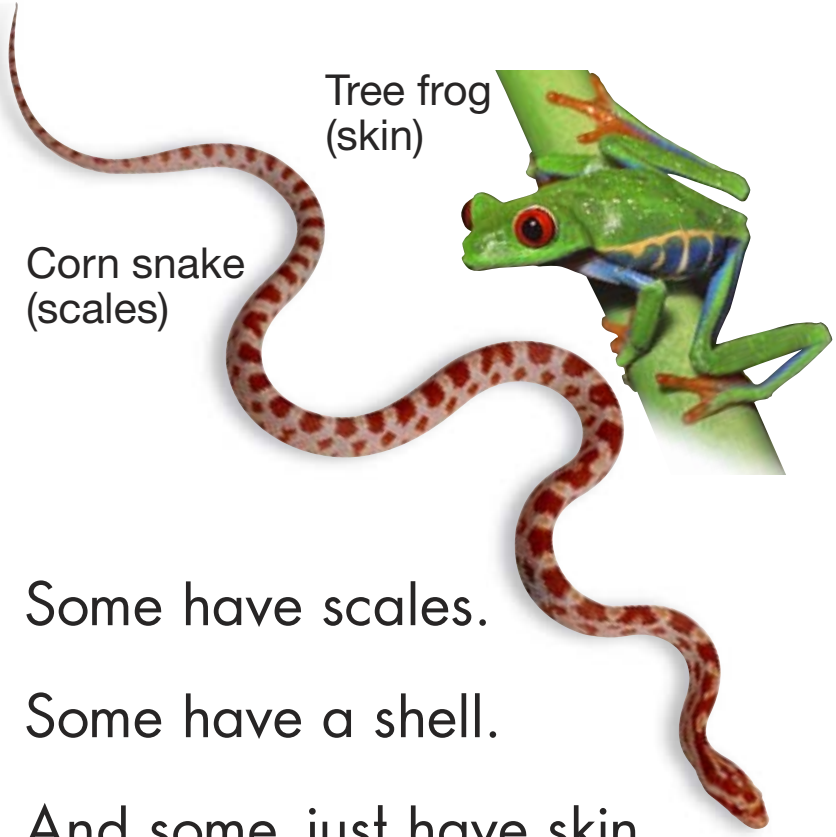
Animals have different body coverings.

Some have fur.

Some have feathers.

WOWSER!

A porcupine has 30,000 sharp quills on its body



Some have scales.

Some have a shell.

And some just have skin.

Body parts look different on different animals.

Some have different noses.

Some have different ears.

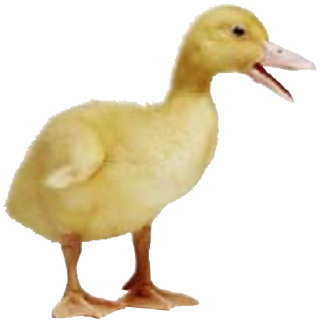
Some have different feet.

How are the animals on page 13 different?


Cat

Do You Know?

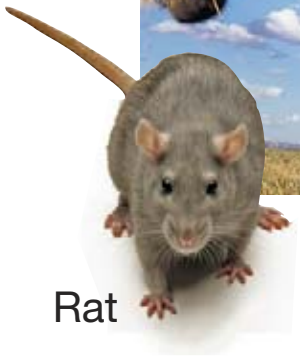
Cats have hooks on their tongues. The hooks help grab food. If your cat licks you, you may feel those rough hooks.



Duck

Rabbit

Ring tailed lemur



Rat

African elephants

Animals eat different things.

Some animals only eat plants.

Groundhog eating a flower

Caterpillar eating a plant

Lion

Some only eat other animals.
Some eat plants and animals.

Human being

WOWSER!

When born, a baby kangaroo is about the size of a large bean.

Most animal babies look like their parents.

Some animal babies do not look like their parents.

Tadpoles

Frog

Ewe with a lamb

Animals, Animals

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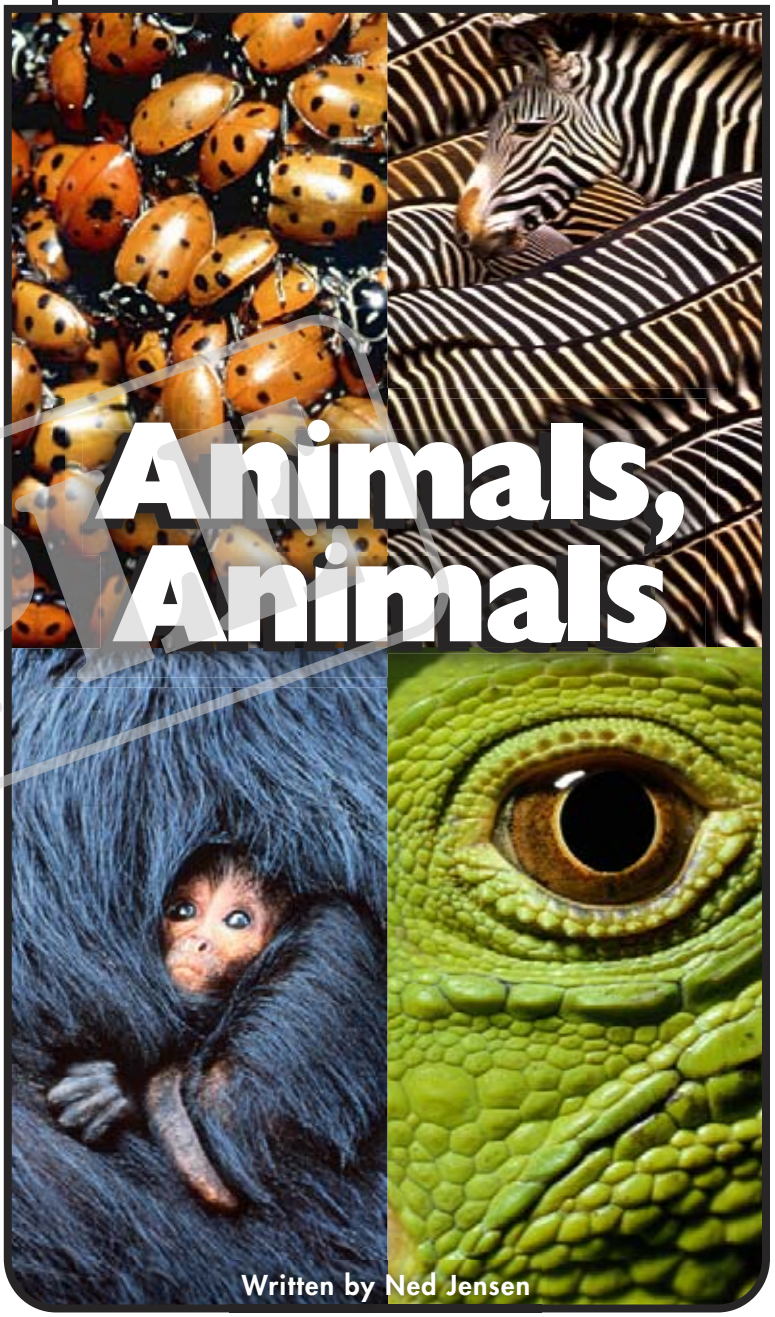

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Table of Contents

Mexican red-kneed tarantula

Introduction

Everywhere in the world, you can see many kinds of animals. All these animals are living things that move, eat, grow, and have babies. All animals need certain things. They need food, water, and air. They also need a place to live.

Bird eggs in nest

Zebras

Deer

Basset hound

Tortoise (shell)

Body Coverings and Parts

When you look at animals, you probably see that some are covered with fur and others are covered with feathers. Still others have scales or a shell. And some are covered only with skin.

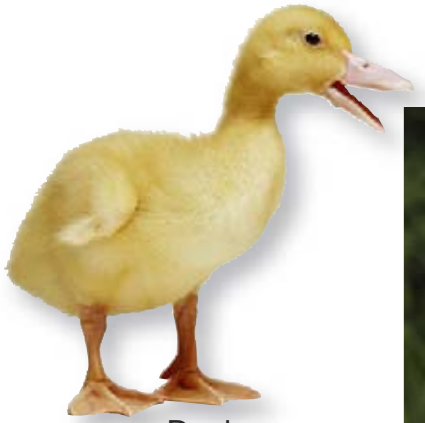
Tree frog (skin)

WOWSER!

As a snake grows it has to shed its old skin and grow new skin.

Animals come in many shapes and sizes. Most animals have many of the same parts. The parts of one kind of animal often look different from the parts of other kinds of animals.

Rat



Duck

Ring tailed lemur

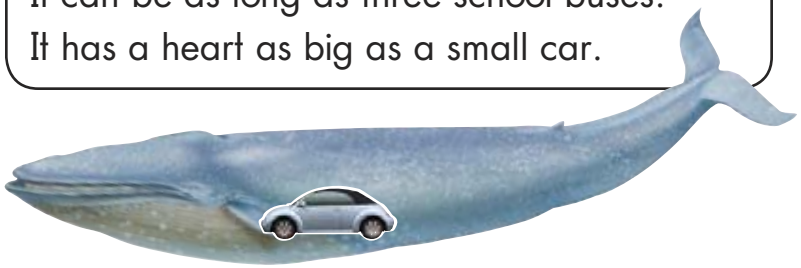
Rabbit


African elephants

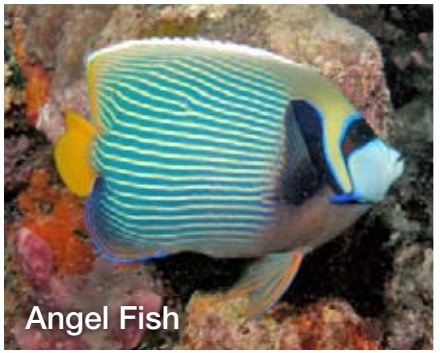
For example, the nose of an elephant looks different from the nose of a rabbit. The elephant's ears look different than the ears of a rat. What parts of the animals on page 6 look different?

WOWSER!

The blue whale is the biggest animal.
It can be as long as three school buses.
It has a heart as big as a small car.



Animals come in many colors. Some animals are only one color. Other animals have many different colors. Some have stripes, while others have spots.


Angel Fish


Ladybug


Zebra


Polar bears

Chameleon

Arctic fox in the summer

Some animals change color to match the color of their surroundings. Others change color from one season to another.

Where Animals Live

The place where an animal lives is called its **habitat**. Animals live in many different habitats. Some live on land. Some live where it is hot and dry. Some live where it is very cold. Many live on the ground and some live under the ground.

Camels

Horned frog

River otter

Some animals live in **fresh water**. They live in lakes, rivers, and ponds. Others live in **salt water**. They live in oceans and seas.

Bottlenose dolphins

Green sea turtle

How Animals Move and Eat

Animals move in many different ways. Some have strong legs for running or hopping over the ground. Some have wings for flying through the air. Others have fins and flat tails for swimming through water. Others have special feet for digging through the ground or for climbing trees.

Kangaroos hop.

Birds fly.

Fish swim.

Moles dig.

Eagle catching a fish

Eagle talons

Animals eat many different things. Some only eat other animals. They have claws, **talons,** or special arms for catching other animals. They have sharp teeth or beaks for ripping and tearing their food.

Some animals only eat plants. They have special body parts for eating plants. They have flat teeth for grinding their food.

Horse grazing

Horse teeth

Some animals eat both plants and animals. They have flat and sharp teeth for eating plants and animals.

Human being

Animal Babies

When most animal babies are born, they have the same body parts as their parents.

Ewe with lamb

Monarch butterfly, caterpillar, and pupa

Frog

Tadpoles

When some animal babies are born, they do not look like their parents. They change as they grow. They grow through different stages. In time they will look like their parents.

WOWSER!

When born, a baby kangaroo is about the size of a large bean. After it is born, it crawls into a pouch on its mother's stomach.

Conclusion

Animals have many needs. Animals live where their needs can be met. Different animals have body shapes and parts to help them get food and survive in their habitat.

Glossary

fresh water	water found in most rivers, lakes and ponds
habitat	the place where an animal lives
salt water	water found in oceans and seas
talons	claws on the feet of birds like owls and hawks

ANIMALS

Animals, Animals

INTRODUCTION

This book is available in three reading levels, as indicated by the one, two, or three dots beside the Science A–Z logo on the front cover. In this unit, the low level book is intended for developing readers.

This guide offers general instructions that can be used with any or all of the leveled books. When appropriate, tips are provided for modifying the instruction for a specific level. The dots in this guide indicate elements of the instruction that are only applicable to certain book levels.

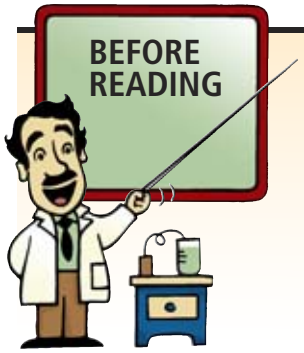
- • can only be used with low level
- ⋮ can only be used with middle level
- ⋮ can only be used with high level
- •⋮ can be used with low and middle levels
- ⋮⋮ can be used with middle and high levels
- •⋮⋮ can be used with all three levels

Throughout the unit, places to refer back to the unit spark (see *Unit Guide*) are identified with this symbol:

BOOK SUMMARY

The book *Animals, Animals* introduces the common needs of all animals. It goes on to explain how animals differ. Labeled photographs support the text at all three levels.

- • The low level book explains how animals are alike and how they differ.
- ⋮ The middle and high level books begin with the necessities of life and traits that all animals have in common. Then they introduce ways animals differ, including their body coverings and parts, habitats, offspring, and how they move and eat.
- ⋮ The high level book provides elements of nonfiction text, including a table of contents, section heads, bold-faced glossary terms, and a glossary.



Preview the book title, cover, and table of contents (if applicable) with students. Ask students to predict what the book will be about. Invite students to preview the remainder of the book, looking at pictures and captions, as well as special features, section heads, and the glossary. Encourage them to use this information to continually make and revise their predictions while reading. Invite students to name any animals they recognize in the book.

- This book is most appropriate for students who need more guidance with reading. You may want to read the book together in a reading group, and discuss the concepts together. Guide students to look at the pictures and make connections with the text as they read along with you.

These books are most appropriate for developing and successful readers. You may want to have these students read the book independently, in pairs, or in small groups. Then have students discuss the concepts and reinforce the content with associated resources, including vocabulary activities.

Vocabulary

Instruction for the unit's vocabulary terms can be found in the *Unit Guide*. It defines core and other science terms, and offers links to puzzles and worksheets you can use to teach vocabulary before, during, or after the reading.

These terms are found in the glossary of the high level book.

habitat	**salt water**
fresh water	**talons**

Reading Strategy

Connect to Prior Knowledge

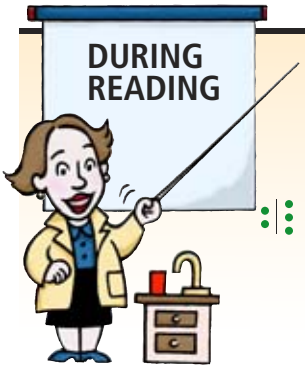
Connecting the content of a text to students' own experiences helps them personalize and remember new information. Invite students to briefly tell a story about a time they have seen an animal. Have them note how the animal behaved, what it looked like, and what they can remember about where the animal lived.

Ask students what they know or think they know about a few of the animals they noticed in the book's pictures. Model how to connect to prior knowledge.

> **Think-aloud:** *Before I start to read, it helps me to think about what I already know about some of the things in the book. I find I want to learn more about those topics. I get more excited to read it, and I usually remember more of what I have read once I finish.*

Download and print the *KWL* graphic organizer. Introduce it, and have students complete the first column with things they know about animals. Then have them write some questions in the second column about what they want to know about animals. Prepare students to fill in the third column with things they have learned after they have read each section.

TIP The graphic organizer can also be used with each of the *Quick Reads*.



You may want to review the key science terms before students read. Encourage students to read one page or section at a time, and then discuss in pairs, groups, or as a class what was read. (See Discussion Questions.)

You may wish to have students read the special features in the book to build on the concepts within each section. Some vocabulary terms can be reinforced in these features.

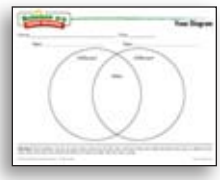
Comprehension Skill Focus

Compare and Contrast

Explain to students that one way to understand what we read in a book is to think about how topics are alike and different. Create a large T-chart on the board or butcher paper. Label the left column Alike and the right column Different. Model how to fill in the T-chart to compare something familiar to students, such as foods, fairy tales, or articles of clothing.

Now have individual students, pairs, or small groups create a similar chart on paper to compare how animals are alike and different. Above the chart have them write a title such as Are All Animals Alike? Help students understand what kinds of things to write on the T-chart and where to write them. As students read, remind them to pause and fill in the chart when they read about similarities and differences of animals.

After reading, invite students to present their charts to the class. Review how comparing and contrasting can help them understand what they read.



You can also download and print the *Venn Diagram* graphic organizer. Have individuals, pairs, or groups choose two animals from the book and compare them on the graphic organizer. Alternatively, you can have students choose two new animals to research, then use the graphic organizer to compare them.

TIP The graphic organizer can also be used with each of the *Quick Reads*.

As students read, they should use other comprehension skills in addition to compare and contrast.

Discussion Questions

Use the *Discussion Cards* during or after reading. The cards are structured so they can be used for whole-group discussion, or assigned to individuals, pairs, or groups. Choose the activity that best serves your purposes. It may be helpful to allow students to use their books, T-charts, and completed graphic organizers as they try to answer the questions. Here are some suggested activities:

- Divide the class into groups and have each group discuss the questions from one section of the book. Then have groups report their responses to the class.
- Place discussion cards at centers and have groups talk about or write their responses as they rotate through them.
- Have each student choose a card and write an answer on the back. Collect and review these with the whole class.
- Assign certain questions to groups or individuals for homework.

Each question can be answered with certain book levels as noted with dots in the upper left corner. You may want all students to think about all the questions, even if their book level is not noted on certain cards. The book section or topic most closely related to the question appears on each card. Question types are noted in parentheses.

All questions can be answered with all three book levels, except where noted.

Introduction

Only the high level books separate this content in an introduction.

- What makes all animals the same? (comprehension)
- What are some ways animals can be different? (comprehension)
- What if an animal had all but one of its needs? (synthesis)

Body Coverings and Parts

- Name some different ways animals' bodies are covered. (knowledge)
- Which animal is your favorite looking animal and why? (evaluation)
- Compare the parts of any two animals pictured in the book. (analysis)

Where Animals Live

- What does habitat mean? (knowledge)
- Pick an animal and finish the sentence: "The habitat of a(n) _____ is _____." (application)
- Name an animal that can live on land and in water. (application)
- Name an animal that can live on land and in the air. (application)

How Animals Move and Eat

- What are some parts on an animal's body that help it move? (knowledge)
- Why do some animals have sharp teeth while others have dull teeth? (comprehension)
- Name three animals that move the same way. (application)

Animal Babies

- Name some animals whose babies look a lot like their parents. (comprehension)
- Name some animals whose babies look different from their parents. (comprehension)
- Why do you think animals have babies? (analysis)

Encourage students to reread the book for reinforcement of the content and for reading fluency.

Reflect on the Reading Strategy: *Connect to Prior Knowledge*

Review the strategy of connecting to prior knowledge. Invite students to share how this strategy helped them understand what they read.

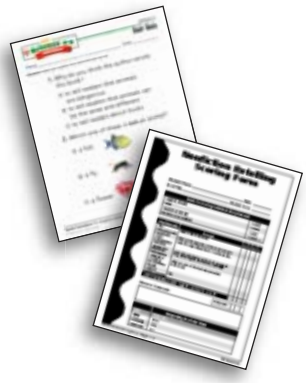
Enduring Understanding

In this book, students have read about what makes animals alike and different. They have also read about what animals need to grow and survive. Discuss the following question with students:

- *How can you use what you know about animals to choose a new pet and care for it?*

Home Project

Have students draw a picture of an outdoor area near their home (e.g., a backyard, park, or apartment complex courtyard). Have them include animals they have seen there.



Assess

Download and print the *Unit Quiz*.

Use the *Nonfiction Retelling Rubric* to assess understanding.

Quick Check: For individual or group assessment, have students respond orally to the following prompt:

- *Describe how animals are similar and different.*

Shells, Skin, and Spines

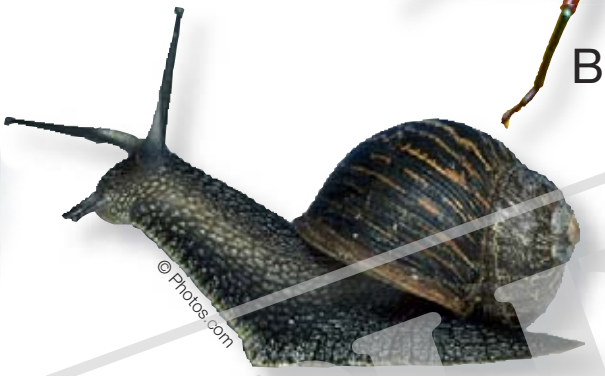
Which animals have shells?

Which animals have needles?

Which animals have skin?

Beetle

Crab



Snail

Hippopotamus

Frog

Pig

Porcupine

Lion fish

Shells and Skin

Slow to Walk, Hard to Eat

The tortoise has a shell.

The shell is hard. The tortoise can hide inside its shell.

The shell keeps the tortoise safe.

Tortoise keeping safe from a lion.

Do You Know?

Tortoises come in many sizes.

Riddle

Why did the snake go to the police?

It lost its skin.

King snake shedding.

A New Skin

This is a snake getting rid of its skin.

It got too big for its skin.

It grew new skin.

Its old skin came off.

Shells and Skin

Slow To Walk, Hard To Eat

The tortoise has a big, hard shell. The shell is hard like your bones.

The tortoise can pull its legs and head inside its shell. The shell keeps the tortoise safe. It's easy to catch a tortoise, but it's hard to eat one!

Tortoise keeping safe from a lion.

Do You Know?

Tortoises come in many sizes.

King snake shedding.

A New Skin

When a snake grows, it gets too big for its skin. It grows new skin under the old skin. The old skin gets dry and falls off.

You shed your skin, too, but you do it one tiny bit at a time. Snakes shed theirs all at once.

Sow Bugs

Purpose
To discover how sow bugs react to light and touch.

Process Skill(s)
Observe, Measure, Collect data, Interpret data, Predict, Indentify and control variables, Draw conclusions

Background
Sow bugs (*Armadillidium vulgare*) are called bugs, but they are not actually insects; they are isopods. An isopod is a type of crustacean, meaning they are related to shrimp and crayfish. Sow bugs are known by many names, including pill bug, doodle bug, potato bug, woodlouse, armadillo bug, roly-poly, cheesybug, and chuggy pig! They are generally nocturnal and live in damp, dark places (*try not to share this with students before the experiment*). They are seen as helpful to gardeners, because they recycle nutrients back into the soil. But when they are overly abundant they can damage plants. Students may be familiar with Tuck and Roll, the acrobatic wood lice in the film "A Bug's Life."

Time – Approximately 45 minutes – 1 hour

Grouping – Pairs or small groups (3–5)

Materials
- ❑ data sheet
- ❑ one sow bug per group
- ❑ paper plate for each sow bug
- ❑ damp paper towel
- ❑ construction paper
- ❑ flashlights (or a bright lamp)
- ❑ magnifying lenses
- ❑ pencils with rubber erasers
- ❑ stopwatch

Note: If you cannot find sow bugs outdoors, there are many online sources, or you can check with local nurseries, gardening stores, or fishing stores. Also, if it is not feasible to provide one flashlight for each group, you can use one light and shine it on groups' plates one at a time.

Procedure
Preparation

1. Introduce sow bugs to the class. Gather any prior knowledge students have about these creatures.
2. Explain that sow bugs are animals. They deserve to be treated gently, just like other animals. Because they are so small, they can easily be hurt, so students need to be very careful and use the lightest of touch if they handle them.
3. Preview the experiments before distributing the sow bugs. Explain to students that they will be observing the sow bugs to learn about them. First they will see how they react to being touched. Then they will test the sow bugs' reaction to light.
4. Get students into groups. Distribute one data sheet to each student. Have group members discuss predictions for each of the two experiments, and then write these on their data sheet.
5. Pass out a paper plate with a damp paper towel on it to each group. Place one live sow bug on the paper towel. Students may not touch it yet. Be sure the plate is in a safe place on the table.

Experiment 1: Touchy Feely

1. Have groups observe the sow bugs carefully *without touching them*. Gather descriptions of the sow bug, including its size, color, parts, number of legs, and unique features. Also ask what the animal is doing. Have students sketch the sow bug in the appropriate box of their data sheet, and then circle the picture that best shows the sow bug's position *before* being touched.
3. Tell students that, when you start the stopwatch, they will touch the sow bug with a pencil eraser to see what happens. After that, they will see how long it takes for the bug to return to its starting position.
3. Start the stopwatch. Instruct one member of each group to touch the bug very, very lightly with a pencil eraser, then leave it alone and watch what happens. Direct students to circle the picture on their data sheet that is closest to the bug's position *after* being touched. (If students demonstrate respect for the delicate nature of the sow bugs, you might allow them to use their fingers.)
4. Ask one member from each group to report to you when the bug returns to its uncurled position. As students wait for the sow bugs to uncurl, you may want to set a maximum cut-off time if no change has been observed. The sow bugs may uncurl sooner if not crowded by curious faces. Look at the stopwatch and record each group's elapsed time on the board. Discuss what might have caused the differences in these times (each bug is unique, some may have been touched harder than others, and so forth).
5. Encourage students to reflect on their predictions. Were they correct? Remind them that it is okay for a prediction to be proven wrong. Either way, you can learn from the results. Making a prediction helps us start thinking about what will happen.

Experiment 2: Lights Out!

1. Ask students to check their predictions of how the sow bugs will react to light. Have a group member use the construction paper to shade part of the paper plate across from the sow bug. Direct students to circle the picture showing the bug's location *before* shining the light on it.
2. Pass out one flashlight to each group. Model for students how to make half of the plate dark. Have students shine the light on the sow bug from above and observe what it does.
3. Instruct students to circle the picture showing the bug's location *after* the light shines on it. Discuss the results and compare these to students' predictions. Ask students why they think the sow bugs behaved the way they did.
4. Tell the students holding the light and the construction paper to remove them and observe the sow bugs (no data recording is necessary).
5. Safely return the sow bugs to their container.

Safety: Students should avoid touching their face and should wash their hands after handling live animals.

Extensions and Variations

- *Research:* Gather and record any questions students have about sow bugs. Offer a variety of research materials to help students learn more about these creatures.
- *Variation:* Have students help design a similar experiment using other student-friendly creatures, *remembering rules for safe and ethical animal handling*. Discuss the feasibility of experiments they would like to conduct to learn more about the animal's behavior. *Please ensure that no harm comes to the animal subjects.*
- *Writing:* Invite students to write a diary entry as if they were sow bugs. What did they do today?
- *Math:* Use the recorded times it took sow bugs to uncurl to create a manual or electronic graph. This will visually display differences between groups' bugs.
- *Art:* Have students study the sow bugs with hand lenses. Then help them use their observations to make masks, posters, nametags, or other art projects featuring sow bugs.

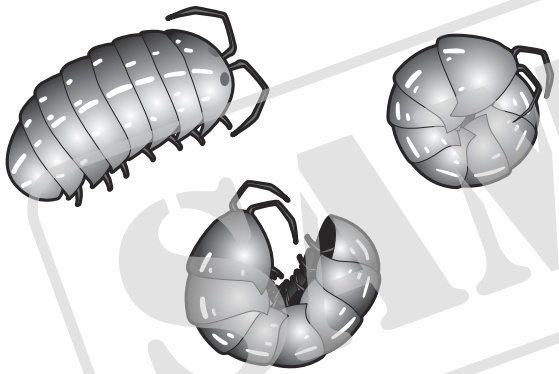
Data Sheet: *Answers will vary. Generally, the sow bugs will curl up for some time after being touched. Being nocturnal, they will tend to seek shade from the flashlight.*

Name_____ Date_____

Collect Data

Prediction When we touch the sow bug…	**Prediction** When we shine light on the sow bug…	**Drawing of our sow bug**

Experiment 1: Touchy Feely

Sow bug before being touched	**Sow bug after being touched**
	

Experiment 2: Lights Out!

Sow bug before flashlight	**Sow bug after flashlight**