



SC.3.L.15.1 Classify animals into major groups (mammals, birds, reptiles, amphibians, fish, arthropods, vertebrates and invertebrates, those having live births and those which lay eggs) according to their physical characteristics and behaviors. **SC.3.N.3.2** Recognize that scientists use models to help understand and explain how things work.

ESSENTIAL QUESTION

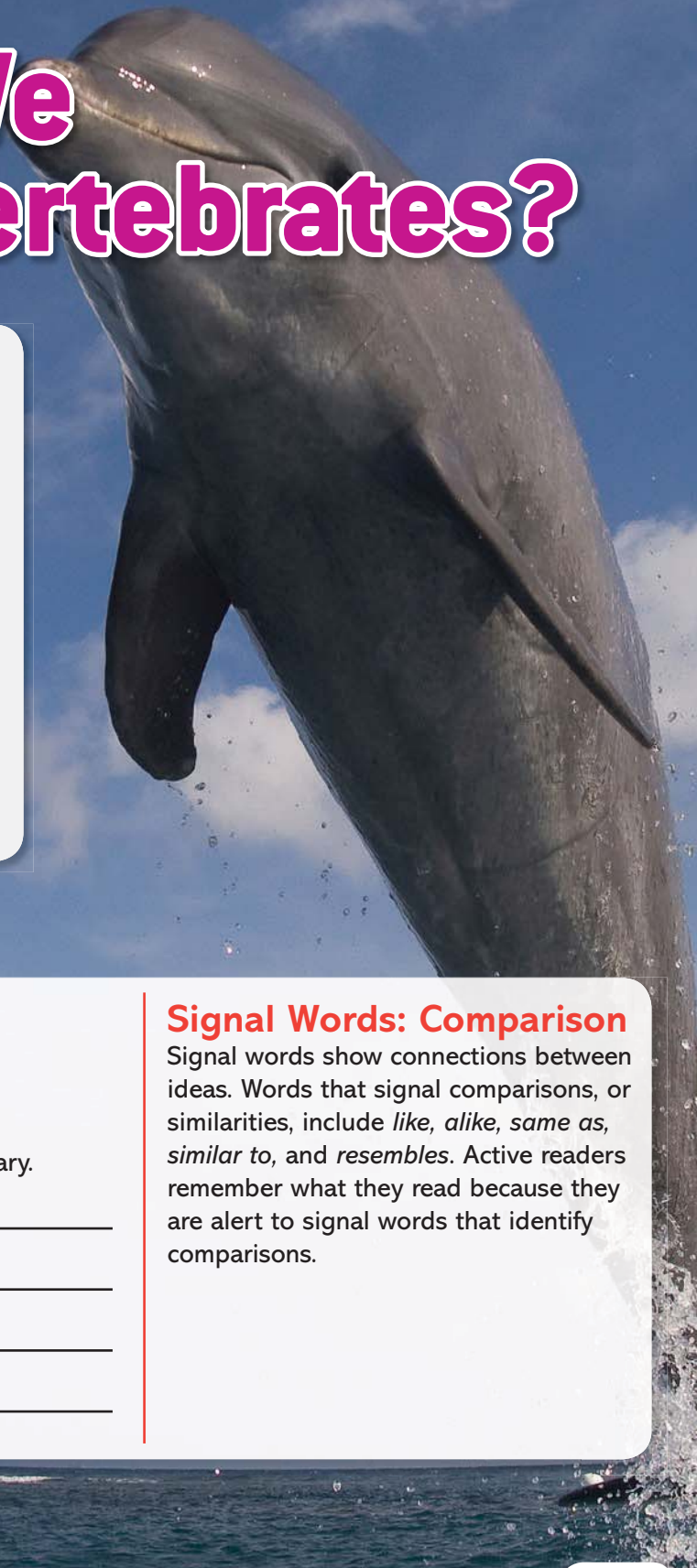
How Can We Classify Vertebrates?



Engage Your Brain

Find the answer to the following question in this lesson and record it here.

How would you classify this animal?



ACTIVE READING

Lesson Vocabulary

List each term. As you learn about each one, make notes in the Interactive Glossary.

Signal Words: Comparison

Signal words show connections between ideas. Words that signal comparisons, or similarities, include *like*, *alike*, *same as*, *similar to*, and *resembles*. Active readers remember what they read because they are alert to signal words that identify comparisons.

Have a Backbone!

Some boas live in thick forests. Their backbones let them curl up and stretch out!

What do you have in common with fish, alligators, frogs, birds, and seals? Why, it's your backbone!

ACTIVE READING As you read these two pages, find and underline the definition of *vertebrate*.

Animals that have a backbone are called **vertebrates**. There are many kinds of vertebrates. Frogs, birds, snakes, and tigers are all vertebrates. Vertebrates live in many places.

Lions live in grasslands. Their young are called cubs.



(b) ©GlobalP/Stock/Getty Images Plus/Getty Images; (t) Jany, Sauvanet/Photo Researchers, Inc.; (t) ©Randall Fung/Corbis

© Houghton Mifflin Harcourt Publishing Company

Fish

Fish are vertebrates, too. Fish are many sizes, shapes, and colors. Some fish are tiny. Other fish, such as the whale shark, are large. A whale shark can grow as long as a school bus! Fish take in oxygen through their gills and spend their whole lives in water.

Sea Horse



Male sea horses carry eggs in a part of their body called a pouch.

Monkfish



This fish lives deep in the ocean where there is no light.

Bass



This bass lives in fresh water. Like most kinds of fish, it lays eggs.



DO THE MATH

Measure in Centimeters

Alexa's goby is about 3 centimeters long. Draw a fish this long.

Samuel's goldfish is 6 centimeters long. Draw a fish this long.

Amphibian or Reptile?

How are amphibians and reptiles different? Read on to learn about these two groups.

ACTIVE READING As you read these two pages, draw circles around the clue words that signal when things are being compared.

Frog

A



This amphibian lives around water.

Turtle

R



This reptile lays eggs.

Amphibians [am•FIB•ee•uhnz]

start life in water. Many amphibians move to land as they grow.

Salamanders, toads, and frogs are amphibians. Like most other amphibians, frogs lay their eggs in water. When the eggs hatch, the tadpoles look like fish. Most amphibians have smooth, moist skin. Young amphibians have gills. Many adult amphibians have lungs.

Reptiles are animals with scales covering their bodies. Lizards and turtles are reptiles. Similar to amphibians, most reptiles hatch from eggs. A reptile breathes with lungs its whole life. Reptiles, such as crocodiles, that spend a lot of time in water must come up for air.

(bkpd) ©Corbis; (bl) ©Joseph T. Collins/Photo Researchers, Inc.; (cl) ©Natural Selection Bill Byrne/Design Pics/Corbis; (bkpd cards) ©Alamy Images Royalty Free; ©BYPPhoto/Alamy

© Houghton Mifflin Harcourt Publishing Company

Identify

► Read the facts on each trading card. In the circles, write an "A" for amphibian or an "R" for reptile. Then color the borders green for reptiles or orange for amphibians.

Alligator



Alligators are covered with large scales. They lay eggs in nests.

Newt



Newts lay their eggs in water.

Gecko



Geckos are covered with scales. They breathe using lungs.

Mudpuppy



Mudpuppies have smooth, moist skin.

Frilled Lizard

R



Frilled lizards lay their eggs on the ground.

Salamander

A



Birds and Mammals

What are some other vertebrate groups? Read to find out.

ACTIVE READING As you read these two pages, underline three characteristics of birds and circle three characteristics of mammals.

Birds are another kind of vertebrate. Birds are animals that have wings, feathers, and beaks and lay eggs. Some birds, such as the hummingbird, are tiny. Other birds, such as the ostrich, are very large. Birds breathe with lungs.

Flamingo



Flamingos live in places with shallow water.

Golden Pheasant



306

Owl



Penguin



Penguins have wings, but they cannot fly.

Bee-eater



Bee-eaters have colorful feathers.

(okgd) ©Corbis; (bl) ©Photofest/Alamy; (cl) ©William Manning/Alamy; (br) ©Westend 61 GmbH/Alamy; (cr) ©moodboard/Alamy; (tr) ©Photoisc/Getty Images

© Houghton Mifflin Harcourt Publishing Company

Elephants, apes, whales, and dolphins are all mammals. How are they alike? **Mammals** are animals that have fur or hair. Most do not lay eggs. Instead, female mammals give birth to live young and make milk to feed them. Mammals also use lungs to breathe.

Squirrel

M



Bearded Seal

M



Can you tell why this animal is called a bearded seal?

Kangaroo

M



When a kangaroo is born, it crawls into its mother's pouch.

Emperor Tamarin

M

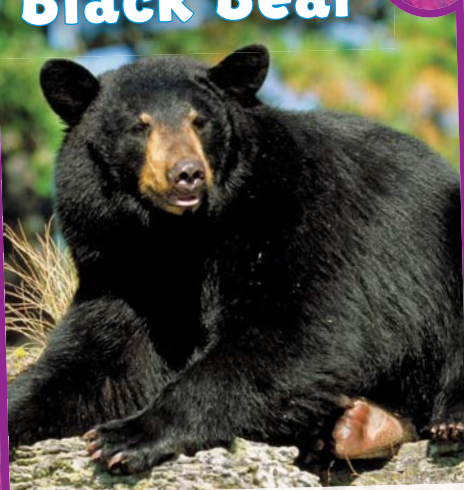
M



This monkey has hair covering its body.

Black Bear

M



► Draw your own bird or mammal card. Label its characteristics.

Sum It Up >>

Write the animal type on the line and then draw a line to the matching picture.

1

A _____ has fur or hair covering its body and gives birth to live young.

2

A _____ lives in water and takes in oxygen through gills.

3

A _____ lives on land or in water and has scales.

4

A _____ has feathers and wings.

5

An _____ has moist skin and begins life in the water.



(turtle) ©Joseph T. Collins/Photo Researchers, Inc.; (seal) ©Blickwinkel/Alamy; (frog) ©Natural Selection
Bill Byrne/Design Pics/Corbis; (penguin) ©moodboard/Alamy; (fish) ©Fredrik Ehrenstrom/Getty Images

© Houghton Mifflin Harcourt
Publishing Company



Brain Check

LESSON 2

Name _____

Vocabulary Review

1 Complete the maze to connect each animal to its classification at the bottom. Pass through each animal's traits along the way.

goldfish



salamander



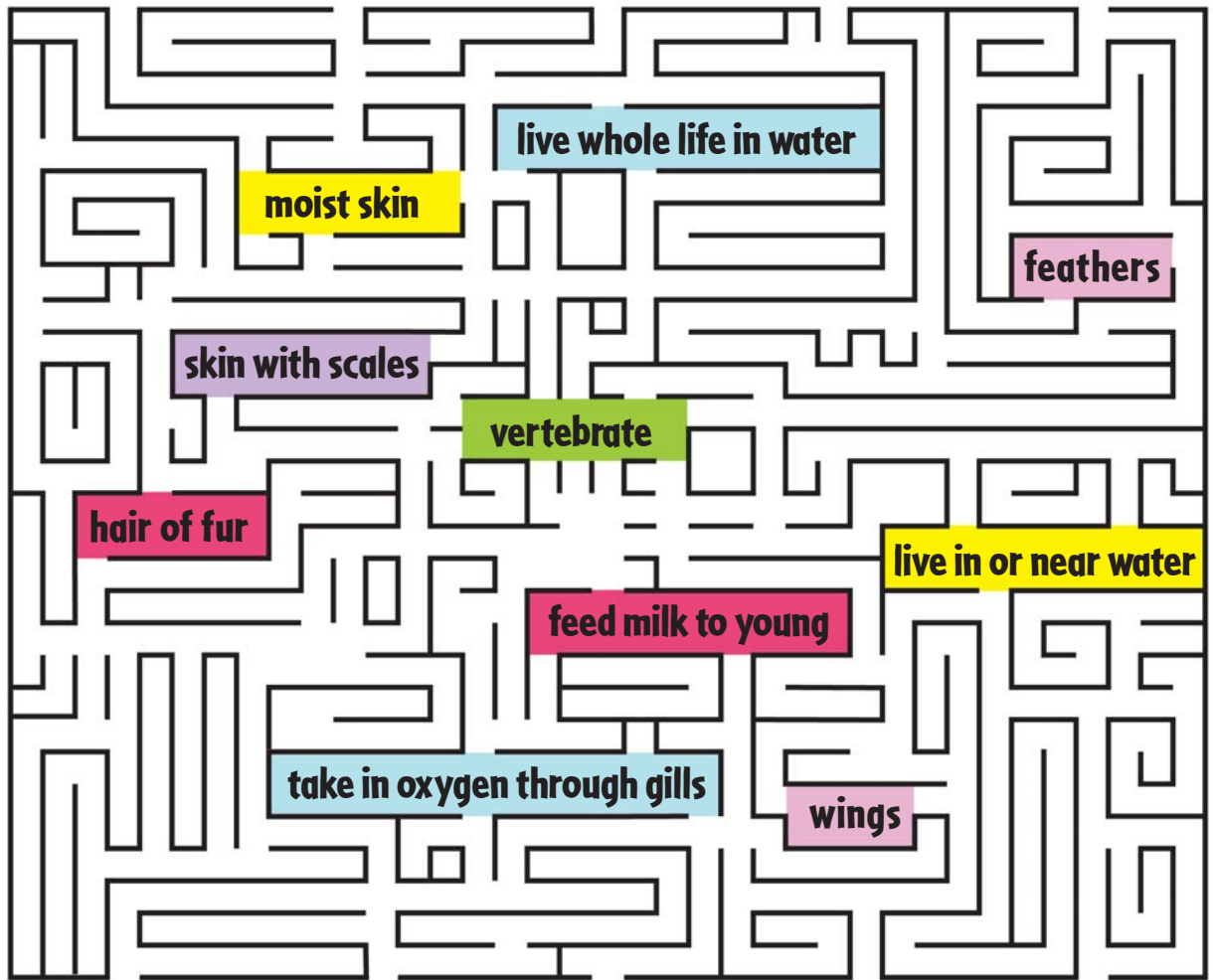
snake



hippo



owl



mammal

reptile

fish

bird

amphibian

Apply Concepts

2 You are hiking along a river. You see an animal that looks like it could be either a lizard or a salamander. What are questions you could ask the guide to help you decide which animal it is?

3 Draw an imaginary bird. Label the parts that make it a bird.

4 Place an X on the animals that lay eggs.



lizard



buffalo



newt



ostrich



salmon

Take It Home!

Share what you learned about types of animals with a family member. Together, name and describe the fish, reptiles, amphibians, birds, and mammals you have seen or know about.