



Encounter fascinating animals that live in and around water

Creatures of the Waters





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Encounter fascinating
animals that live in and around water



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Creatures of the Waters

I N T R O D U C T I O N

**How did the “dabbling duck” get its name? What fish can leap up waterfalls?
Is a sponge a plant or an animal? What animals can live both in water and on land?**

In *Creatures of the Waters*, you'll discover answers to these questions and many more. Through pictures, articles, and fun facts, you'll learn about the great diversity of animal life found in waters around the world.

To help you on your journey, we've provided the following guideposts in *Creatures of the Waters*:

- **Subject Tabs**—The colored box in the upper corner of each right-hand page will quickly tell you the article subject.
- **Search Lights**—Try these mini-quizzes before and after you read the article and see how much—and how quickly—you can learn. You can even make this a game with a reading partner. (Answers are upside down at the bottom of one of the pages.)
- **Did You Know?**—Check out these fun facts about the article subject. With these surprising “factoids,” you can entertain your friends, impress your teachers, and amaze your parents.
- **Picture Captions**—Read the captions that go with the photos. They provide useful information about the article subject.
- **Vocabulary**—New or difficult words are in **bold type**. You'll find them explained in the Glossary at the end of the book.
- **Learn More!**—Follow these pointers to related articles in the book. These articles are listed in the Table of Contents and appear on the Subject Tabs.



Have a great trip!



Creatures of the Waters

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Which of the following can be said about an albatross?

- a) It spends most of its time on land.**
- b) It eats other birds.**
- c) It goes to land only to lay eggs.**

Albatrosses use their long wings to soar and glide on air currents. They can stay in the air for hours without flapping their wings. The black-browed albatross, shown here in flight, has a dark marking around the eye that makes it look as though it is frowning.

Forever Gliding

The albatross is an amazing seabird. It spends most of its life soaring above the water. The only time albatrosses ever go ashore is when they lay eggs and raise their chicks. Groups (called “colonies”) of the birds build



Scientists measuring an albatross' wingspread.
© Wolfgang Kaehler/Corbis

nests on isolated Antarctic islands. A single large white egg is laid in a bowl-shaped nest built from plants and soil. Sometimes the nest is just a patch of bare ground.

A young albatross grows slowly. It takes at least four months for it to develop all the feathers it will need to fly. Once it's able to fly, the albatross will spend the next five to ten years out at sea. The albatross can glide for hours at a time, without flapping its

long narrow wings. To stay in the air like this, it needs windy weather. In calm weather the albatross has trouble keeping its heavy body in the air, so it rests on the water and floats like a cork. It feeds on small **squid** and fish. But it will also follow fishing boats and eat scraps that are thrown overboard.

Some kinds of albatrosses are brown, but most of them are white with some brown or black markings on their bodies or wings. Albatrosses are the largest of all flying birds. In fact, the wandering albatross has the largest wingspread among living birds. The wings of a wandering albatross can measure 11 feet from tip to tip.

Albatrosses live very long lives and are one of the few species of birds that die of old age.

LEARN MORE! READ THESE ARTICLES...

DUCKS • GULLS • PENGUINS

DID YOU KNOW?

In the past, sailors believed albatrosses had special powers. They believed that killing the bird would bring bad luck.



DID YOU KNOW?

Ducks make their feathers waterproof by rubbing oil on them. They get the oil from special glands on their chests and rub it on their feathers with their bills.



A male wood duck is easily identifiable by his purple and green head, his reddish-brown breast flecked with white, and his bronze sides.

© Gary W. Carter/Corbis



Unscramble these words that have to do with a duck.

**wsmimre
nblbiadg
dlwaed**

Dabblers, Divers, and Perchers

Ducks are champion swimmers and are at home almost anywhere near water. Some feed and nest in streams and ponds. Others live near deep wide lakes. Some make their homes on rocky cliffs by the ocean.

There are three kinds of ducks:

“Dabbling ducks” put their heads underwater to eat plants that grow there. This way of feeding is called “dabbling.” They build their nests in

© Roger Wilmshurst—Frank Lane
Picture Agency/Corbis



© Royalty-Free/Corbis



(Top) A dabbling gadwall duck;
(bottom) young girl holding a fluffy
duckling.

hollows near the water. There they also eat plants and insects found near the shore.

Dabbling ducks can fly very fast.

“Diving ducks” dive deep down into the water to find things to eat. They mostly eat fish. They are very strong swimmers.

“Perching ducks” make nests in trees and hold on to the branches with their long-clawed toes. This is called perching. Some may perch on the tall stalks that grow over marshy ponds.

All ducks are graceful fliers and swimmers. But on the ground they waddle from side to side, moving slowly in a funny, jerky way. You usually don’t see a duck waddling too far away from water.

In winter many ducks fly south, where the water is warmer and there’s more to eat. But icy cold water doesn’t bother them. A thick inner layer of soft fluffy feathers called “down” keeps them warm. And their bigger outer feathers help too. They’re **waterproof**. Feathers are a duck’s raincoat. Every year ducks lose their old feathers, and new feathers grow in. This is called “molting.” Until the new feathers grow, ducks can’t fly. So they hide in the grass or on the water to keep safe from enemies.

LEARN MORE! READ THESE ARTICLES...

GEESE • GULLS • SWANS



Fine-Feathered Travelers

Geese are found virtually everywhere. There's the wild Canada goose, and halfway around the world is the snow goose of Siberia. There is the **pie**d goose, which lives "down under" in Australia. The rarely seen Hawaiian goose lives out in the middle of the Pacific Ocean. The little brant goose nests in very cold Arctic areas. The wild goose called the greylag is found in Europe.

Geese spend a lot of time in the water. Like ducks, they have a coat of oil on their feathers that keeps them from getting too wet. And the soft



(Top) Mother goose nuzzling her gosling (young goose); (bottom) snow geese flying in a V formation.

feathers beneath, called "down," keep them warm even in the iciest of waters. Down is so good at keeping things warm that people often use it in winter coats and in comforters. It's also good in pillows because it's so soft.

Geese are fairly large birds, often standing three feet tall despite their short legs. Geese may look somewhat silly when they waddle on land. But their **sturdy** legs actually help them walk more steadily than ducks or swans do.

Geese have webbed feet that make them strong swimmers. They are also powerful fliers. They can make especially long flights during their annual **migrations** to their winter feeding grounds. You may see groups of geese traveling south in the fall in

lines that make a V shape. This formation helps keep them from getting tired as they fly because each goose gets a lift from the air flowing off the goose ahead.

LEARN MORE! READ THESE ARTICLES...
DUCKS • GULLS • SWANS

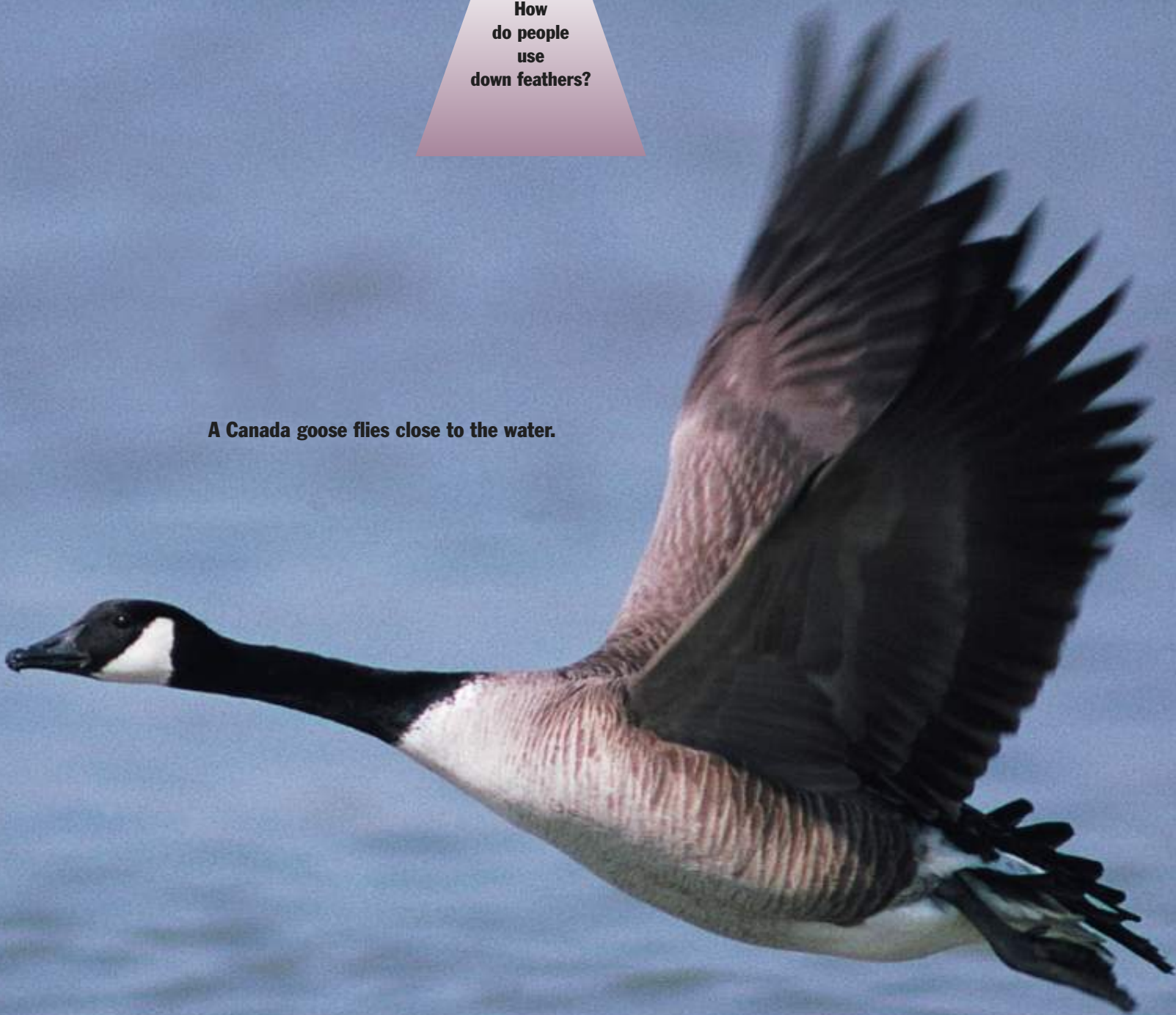
DID YOU KNOW?

People in Asia and Europe have kept geese as guards. Geese make loud honking cries when danger appears. After chasing the enemy away, they cackle triumphantly.



How
do people
use
down feathers?

A Canada goose flies close to the water.



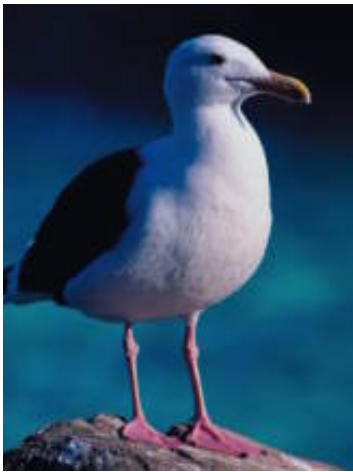
Gulls are among the most common waterbirds of ocean and coastal zones worldwide. Some gulls travel enormous distances between their summer and winter homes.



**How
are gulls
helpful to
humans?**

The Ocean's Cleanup Crew

A fishing boat chugs back into the harbor with its day's catch. The gulls follow close behind. They know that the fishermen will be throwing goodies overboard as they empty the bait bag and clean the deck. The gulls dip into the waves to scoop up bits of food. They fill the air with their excited cries. This often happens when they are fighting over something good to eat.



Seagull stands on a rock.
© Guy Motil/Corbis

Along the shore, gulls are helpful to the people who clean beaches and harbors. They swoop down to pick up messy things. Gulls eat almost anything, from dead fish to potato chips and scraps of hot dogs. And they clear away lots of insects too.

Gulls eat all day long. They have to just to stay alive. Gulls are big birds that fly great distances. While flying, they use up a lot of energy. Gulls can fly many miles without stopping. They can fly from one end of a country to the other. But all the time they're up

there, they're looking down to see if they can find something to eat.

Gulls are good swimmers too. Their feet are webbed. The little stretches of skin between their toes make their feet act as paddles.

Gulls are also floaters. They stay on top of the water like a piece of wood does. On long trips over the ocean, they drop down onto the water and float while taking a nap.

LEARN MORE! READ THESE ARTICLES...
ALBATROSSES • DUCKS • FISH

DID YOU KNOW?

The type of gull called Bonaparte's gull was named after Charles-Lucien Bonaparte, a nephew of the famous French emperor Napoleon Bonaparte. The younger Bonaparte spent much of his life studying the world's birds.

Answer: Gulls clean up a lot of food waste from beaches, harbors, picnic areas, dumps, and parking lots that would otherwise be left behind as trash.



Penguins are excellent divers and swimmers. Here, gentoo penguins enjoy a romp through the water.



SEARCH LIGHT



**Do
penguins have
feathers?**

Well-Dressed Swimmers

When a penguin swims, its light-colored belly and dark-colored back help hide it from enemies. From underneath, its light belly looks like the sky. This makes it hard for its enemy the leopard seal to see it. From



Members of the emperor penguin species, the largest of the penguins.
© Tim Davis/Corbis

above, its dark back looks like the dark water, which helps hide it from big hunting birds.

Penguins cannot fly, but they swim extremely well. The shape of their bodies, sort of like a submarine, lets them swim very fast. They use their short flat wings like flippers and practically fly through the water. In fact, they often leap out of the water and look as if they are trying to flap through the air.

There are 17 types of penguins. They live in Antarctica and along the cool portions of the coasts of Africa, New Zealand, Australia, and South America. Penguins have a thick layer of fat that helps to protect them from the cold. And although they don't look like they do, they actually have feathers all over their bodies. These short feathers also help to keep them warm.

Penguins' short legs give them an odd walk. They do, however, run quickly. Sometimes they'll build up speed and then slide on their bellies to travel quickly over ice and snow.

Penguins live in nesting **colonies**. These colonies can be enormous. Penguins return to the same place, the same nest, and the same partner every year—sometimes traveling long distances. Penguins use the Sun to help them find their direction. Most penguins build a nest on the ground with pebbles, mud, and vegetation. The females lay one or two eggs, and then both parents take turns looking after them.

LEARN MORE! READ THESE ARTICLES...
ALBATROSSES • GULLS • SWANS

DID YOU
KNOW?

Penguins
are the only
birds that
can swim
but not fly.

Answer: Like all birds, penguins have feathers. But theirs are so short and close to their bodies that the feathers look more like skin.



Birds of Beauty, Grace, and Speed

Ducks, geese, and swans are the three main kinds of waterfowl. Swans are the largest of the three, and they are also the fastest flyers and swimmers. They have a stately and dignified appearance when swimming on a pond.

Like the other waterfowl, swans have oily feathers that stay dry in the water. Their webbed feet make them strong swimmers. Swans are heavy-



Mother swan and cygnets.
© AFP/Corbis

bodied birds that feed by dabbling—dipping the long neck into shallow water for plants. They don't dive for food. They have powerful wings for flying long distances.

The whistling swan and the trumpeter swan are found in North America, while the mute swan lives in Europe and Asia. These birds are white. South America is the home of

the black-necked swan, while the beautiful black swan lives in Australia. It is the state emblem of Western Australia.

Swans make a variety of sounds. Even the mute swan often hisses or makes soft snoring sounds. It may even grunt sharply.

The male swan is called a "cob." The female is called a "pen." They look alike. A pair of swans usually stays together for life. The female swan lays about six pale eggs on a heap of plant material, while the male keeps close guard. The young swans are called "cygnets." They can run and swim just a few hours after they hatch. But father and mother swan look after them carefully for several months. Sometimes the cygnets will ride on their mother's back when they get tired from swimming or need protection from enemies.

LEARN MORE! READ THESE ARTICLES...
DUCKS • GEESE • GULLS

DID YOU KNOW?
E.B. White's *The Trumpet of the Swan* is a story about a voiceless swan that learns to play a trumpet.



**What's
one way
that ducks and
swans are alike?
How are they
different?**

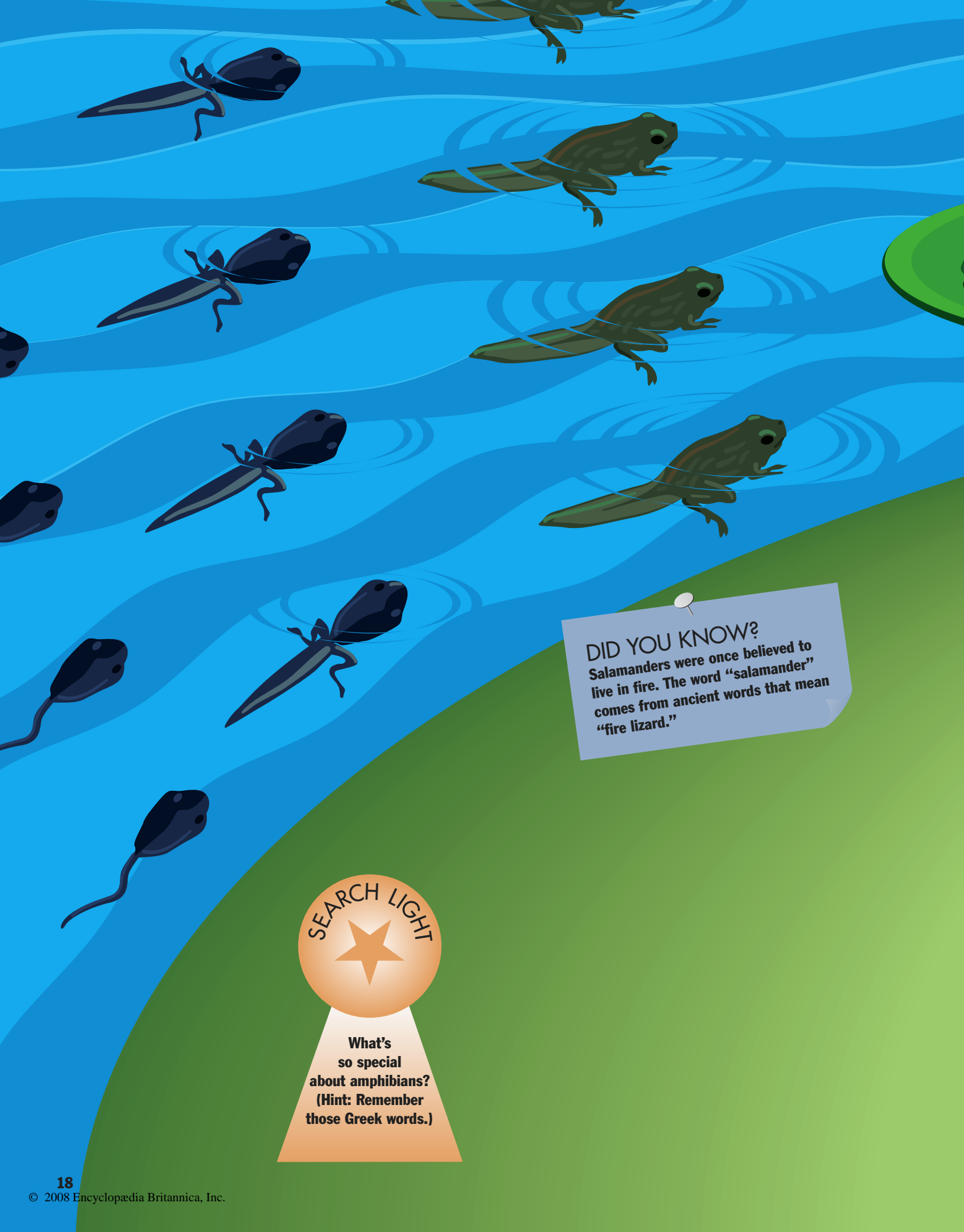


A family of mute swans, with cygnets riding on their mother's back, swim along the water.

© Philip Perry—Frank Lane Picture Agency/Corbis

Answer: Both ducks and swans are waterbirds with oily feathers and webbed feet for swimming. But swans are considerably bigger than ducks. They fly and swim faster than ducks too.



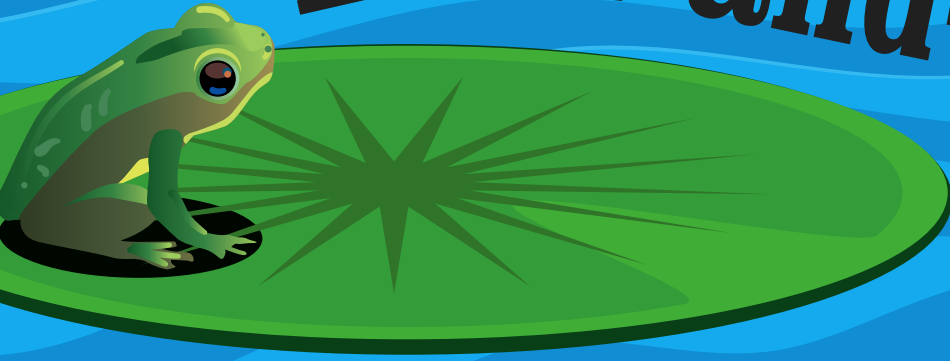


DID YOU KNOW?
Salamanders were once believed to live in fire. The word "salamander" comes from ancient words that mean "fire lizard."



**What's so special about amphibians?
(Hint: Remember those Greek words.)**

The Land-and-Water Dwellers



Millions of years ago, a group of fish began to breathe both in and out of the water. Eventually these fish made their way onto land and began to develop legs. These animals became amphibians, the ancestors of frogs, toads, and salamanders.

The word “amphibian” comes from the Greek words *amphi*, which means “both,” and *bios*, which means “life.” As their name suggests, amphibians live both in freshwater and on land.

Amphibians are cold-blooded animals. This means that an amphibian’s body temperature generally matches the temperature around it. To warm up, amphibians often **bask** in the sun, and to cool off, they move into the shade. Amphibians must also stay near water. If their skin dries out, they will die.

There are three main groups of amphibians. The largest group includes the true frogs, tree frogs, and toads. True frogs have long hind legs and can swim and leap very well. Tree frogs have suction pads on their fingers and toes and can hold on to smooth surfaces. Toads have shorter legs than frogs, and their skin has a warty appearance.

The second group of amphibians is the salamanders, which have tails. The giant salamander of Japan and China is the largest of all amphibians. It can grow to a length of more than five feet.

The third group is the caecilians. These odd amphibians are rarely seen. They have long slender bodies with no arms or legs. They are also blind. A long flexible structure called a “tentacle” sticks out next to each of their useless eyes. They use these tentacles to feel and sniff their way around.

LEARN MORE! READ THESE ARTICLES...
FISH • FROGS • TURTLES





Amazing Changing Amphibians

Frogs are amphibians. This means they can live both in water and on land. And they have a life cycle that takes place in both environments.

A mother frog lays her eggs in the water. In a few days tiny tadpoles, or pollywogs, wriggle out of the eggs. The tadpoles don't look like frogs at all. They have long tails for swimming and slits called **gills** for breathing.

As a tadpole grows into a frog, it changes in many ways. Its tail gets shorter and shorter until it disappears. At the same time, the frog grows front and hind legs. The hind feet have long toes with webs between them to help in swimming and leaping. Plus, the gills disappear and **lungs** develop. Once these changes are complete, the creature is ready to live on land as well as in the water. It's now a frog. For some kinds of frogs, this process of change takes just two months.



Red-eyed leaf frog tadpoles.
© Michael & Patricia Fogden/Corbis

For others, it may take as long as three years.

A frog has smooth moist skin. Its eyes are so big that they seem about to pop out of its head. These eyes help it find food. Its hind legs are more than twice as long as its front ones. The frog travels in great leaps on these long strong legs.

Frogs are closely related to toads. What's the difference between a frog and a toad? Well, a toad's skin is dry and bumpy. Its legs are short, so it can only hop, not leap. And toads spend more of their time on land than frogs do.

LEARN MORE! READ THESE ARTICLES...
AMPHIBIANS • FISH • TURTLES

The tree frog has long legs and sticky suckerlike disks on its feet for climbing.
© Darren Maybury—Eye Ubiquitous/Corbis

DID YOU KNOW?
The Goliath frog of West Africa is nearly 12 inches long!



Unscramble the following words that relate to frogs.
daploet
sligl
traew

Answer: daploet = tadpole
sligl = gills
traew = water



**True
or false?
Alligator is
another name
for a crocodile.**



Today, many alligators and crocodiles are in danger of becoming extinct. One reason is that many are killed each year for sport or for their skins, which are used to make purses, shoes, and belts. These crocodiles are lying in the grass near Moramanga, Madagascar.

© Wolfgang Kaehler/Corbis

Modern Dinosaurs

If you're looking for reptiles that have been around since the days of the dinosaurs, try alligators and crocodiles. These large lizardlike animals are related to the giant reptiles of the past.

Alligators and crocodiles are closely related. They look a lot alike, but alligators have a broad flat head with a rounded **snout**. Most crocodiles



Alligators in the Okefenokee Swamp, Georgia.
© David Muench/Corbis

have a narrow, pointed snout. When a crocodile closes its mouth, the fourth tooth on each side of its lower jaw sticks out.

Crocodiles are larger than alligators. They range from 7 to more than 20 feet long, while most alligators are about 6 to 8 feet long.

Alligators and most crocodiles live along the edges of large bodies of freshwater such as lakes, swamps, and rivers. They spend a lot of time in the water, but they can also be

found on land near the water. Large adults can stay underwater for over an hour without breathing.

Both animals have long snouts, powerful tails, and thick skin with bony plates underneath. Their eyes, ears, and nostrils are located on top of their long heads. Alligators and crocodiles often float with only their eyes and noses showing.

Crocodiles can be found in **tropical** swamps and rivers in Asia, Australia, Africa, and South America. Alligators are less widespread. The American alligator lives in the southeastern United States. In South America there are various alligators called caimans. The Chinese alligator lives in the Yangtze River and is smaller than the American alligator.

Adult alligators and crocodiles eat mostly fish, small mammals, and birds. Sometimes they may kill deer or cattle. Crocodiles are more likely than alligators to attack humans, though alligators will attack if cornered.

DID YOU KNOW?

There are saltwater crocodiles living in northern Australia and Southeast Asia. Australians call their crocodiles "salties."

LEARN MORE! READ THESE ARTICLES...

AMPHIBIANS • MANATEES • TURTLES





**Find
and correct
the error in
the following
sentence:
Anacondas kill
their prey with a
poisonous bite.**

A Tight Squeeze

The giant anaconda is one of the longest and heaviest snakes in the world. But this South American animal is not poisonous. The anaconda kills its prey by squeezing it so hard that it cannot breathe.

The anaconda spends most of its time in water. When an animal goes to a river to drink, the anaconda grabs it. If the prey is large, the snake wraps itself around the animal and can choke it. The anaconda then drags the body into the water to keep it away from jaguars and biting ants that would be attracted to the **carcass**. When an anaconda eats a large animal, it gets so stuffed that it lies still for weeks to digest its meal!



Giant anaconda.
© Z. Leszczynski/Animals Animals

There are two types of anacondas. The yellow anaconda is the smaller of the two. It is tan or greenish yellow with large black markings across its back and black blotches along its sides. Yellow anacondas are found in the southern Amazon River area. The giant anaconda is twice as big as the yellow anaconda. It's olive green with black spots. The giant anaconda lives in the South American tropics east of the Andes Mountains and on the Caribbean island of Trinidad. Giant anacondas can measure over 33 feet long.

Despite its size, a giant anaconda is not really violent. Scientists can simply pick up an anaconda and carry it off. But it may take several of them to lift the snake, especially if it just ate!

LEARN MORE! READ THESE ARTICLES...
ALLIGATORS AND CROCODILES • AMPHIBIANS • SHARKS

A yellow anaconda lies on a log at the edge of the water. Although the anaconda spends much of its time in water, it may also crawl on land and even climb into trees to catch birds.

© Joe McDonald/Corbis

DID YOU KNOW?
Like most snakes, anacondas swallow their food whole. They can open their mouths wide enough to fit around an entire goat.



Taking Their Time

Turtles are known as slow-moving animals. They were around during the age of dinosaurs more than 100 million years ago. Dinosaurs are gone now, but turtles are still here. Slow but steady wins the race!

Like the dinosaurs, turtles are reptiles. There are nearly 250 kinds of turtles in the world today. All turtles breathe air at least part of the time, even sea turtles, which spend almost their whole life in the ocean. In addition to the ocean, turtles can live in ponds, lakes, or rivers. Other turtles live in forests or even hot desert sands, miles away from water. Some people refer to land turtles as “tortoises.”



Three painted turtles perched on a rock.
© William Manning/Corbis

Turtles come in all sizes. Some are no more than 4 inches long. At the other end of the scale, the Atlantic leatherback turtle may weigh as much as 1,500 pounds.

Even sea turtles go ashore to lay their eggs. The newly hatched baby turtles are completely on their own. They scramble from their nest under the sand and walk on their tiny new flippers to the water.

Land and sea turtles can take care of themselves because they carry their houses with them wherever they go. Their houses are their shells. Some turtles can close their shells completely. The snapping turtle can't, but it has a powerful bite for protection.

No matter where they live, turtles don't need to hunt for food or water all the time. Some have a special place inside their bodies where they can store water. And they can store food in the form of fat. Turtles can live for days or even weeks without having anything to eat or drink.



Fill in
the blank:
Land turtles
are sometimes
called _____.

LEARN MORE! READ THESE ARTICLES...
AMPHIBIANS • FROGS • MOLLUSKS

DID YOU KNOW?

Turtles can live longer than people can. Turtles are known to have lived 150 years in the wild, and there are reports of turtles that were even older than that.



A boy kneels to investigate a small turtle. Turtles are found in lakes, ponds, salt marshes, rivers, forests, and even deserts.

© Ariel Skelley/Corbis



Citizens of the Waters

A fish is a cold-blooded animal that has a backbone, lives in water, and breathes by means of **gills**. It normally has two pairs of fins in place of arms and legs, as well as several other fins. Most fish are covered with **scales**.

Fish are fascinating in their variety. The sea horse looks something like a tiny horse standing on its tail. Flounders are as flat as a dinner plate. The rabbitfish, a small relative of the shark, has a head and teeth resembling those of a rabbit. Anglerfish carry their own “fishing rod” to catch other fish. An extended part of the back fin has wormlike pieces of flesh at the tip, which are the “bait.” Anglers of the deep sea have bait that lights up to attract victims.

Size differs as much as shape. Some Philippine gobies reach an adult size of less than half an inch. The whale shark, the largest of all fishes, reaches 50 feet in length and weighs about 20 tons.

Fish swim mainly by sideways movements of the body and tail. The fins are used for balancing, steering, and braking. To move quickly from a resting position some fish shoot a stream of water out of the gills, which causes them to lunge forward. The fastest swimmers, such as the tuna, can travel 30 miles per hour.

Most fish continue to grow as long as they live. Fish that live to an old age can become very large. Carp are among this group. They may live 100 years!

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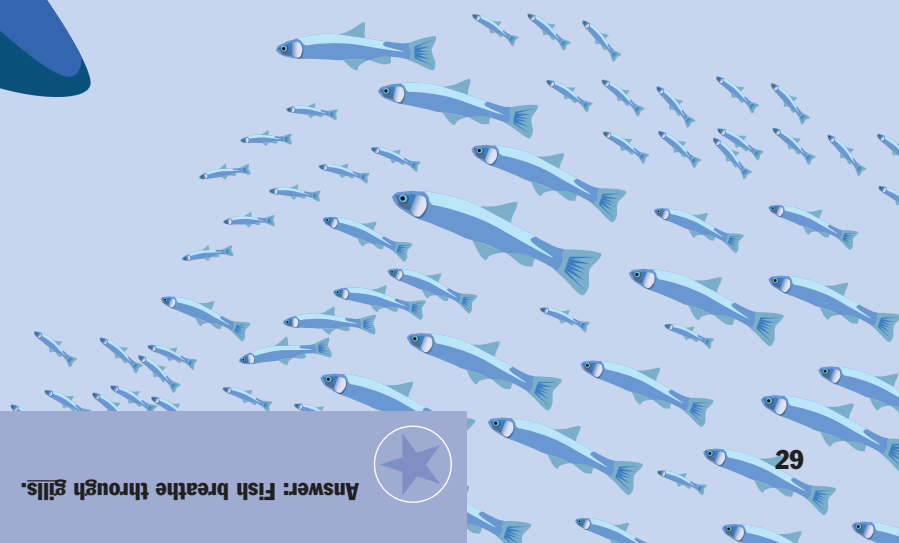
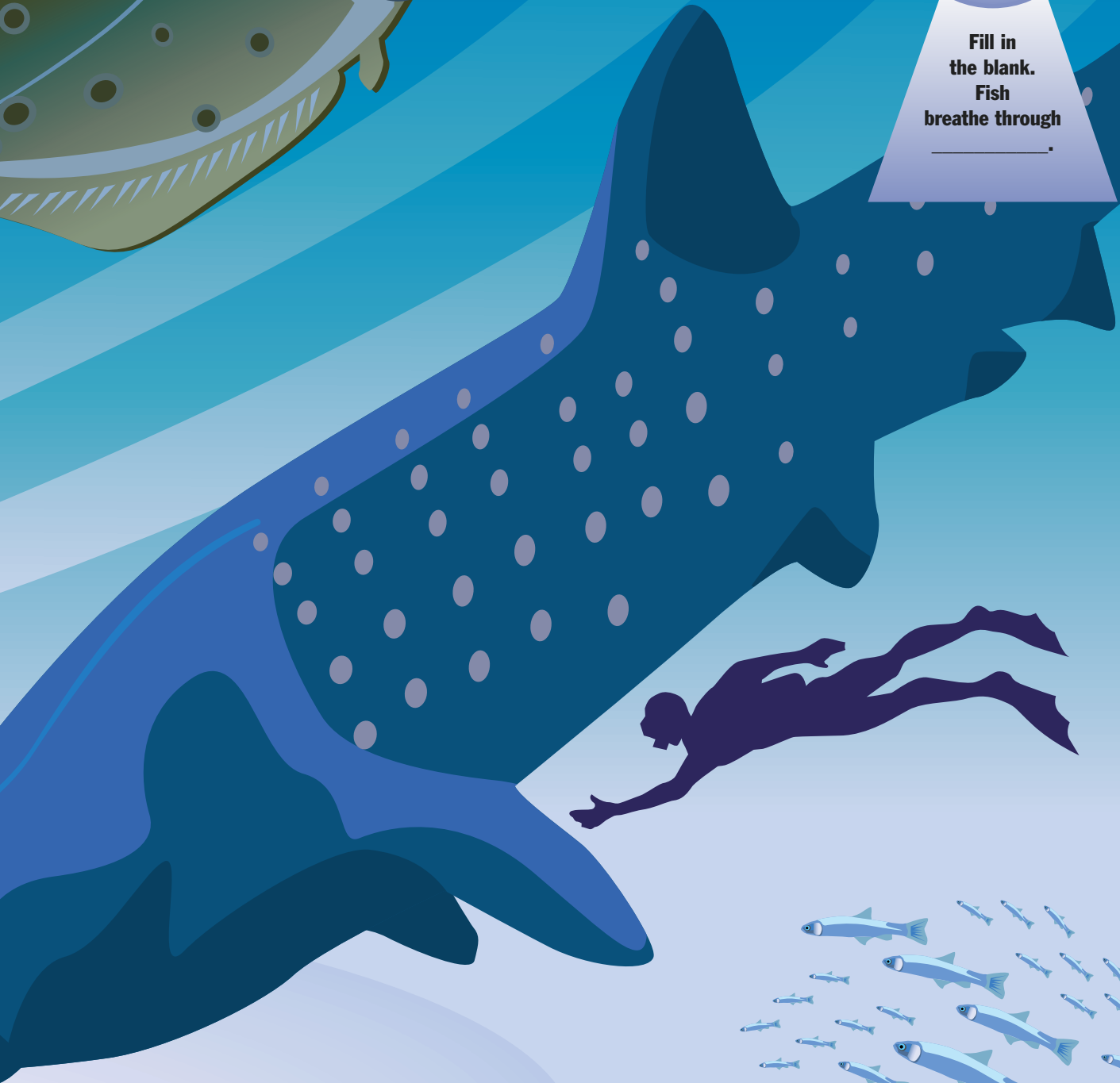
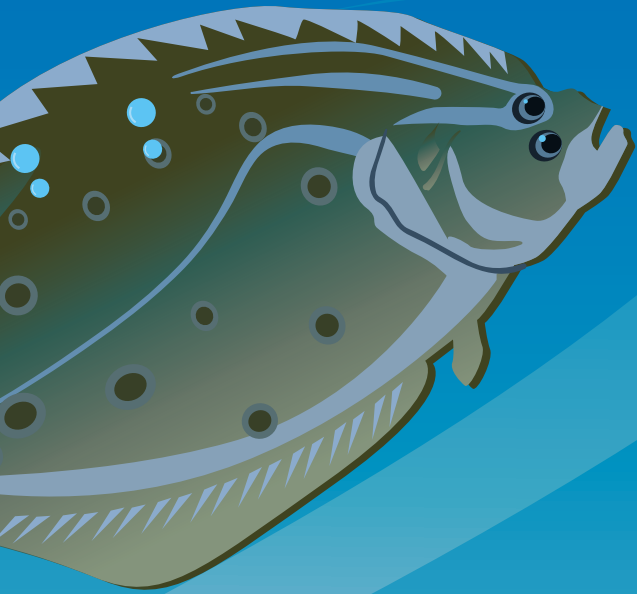
CARP • SALMON • SHARKS

DID YOU KNOW?

Fish called “mudskippers” can crawl across mudflats and wet fields in search of food. Lungfish can burrow into mud when their pools dry up. They lie there, for months if necessary, until rain refills the pools.



Fill in
the blank.
Fish
breathe through
_____.





DID YOU KNOW?
The common goldfish, often a child's first pet, is a member of the carp family.

The Fishy Survivor

The common carp is a fish that lives along the muddy bottoms of ponds, lakes, and rivers. It swallows plants, insects, and anything else it finds to eat. It was first found in Asia but was later taken into Europe and North America. Some people like to eat carp.

Sometimes carp can live 100 years and grow to weigh 80 pounds or more. But not all carp grow that old or that heavy. The fish that are caught usually are under 10 years old and do not weigh more than 10 pounds.



Goldfish swimming in a bowl.
© Doug Wilson/Corbis

The carp has a blunt nose and a small thick-lipped mouth. From its upper lip dangle two pairs of feelers that are called “barbels.”

There are three kinds of common carp. The scale carp has large scales all over its wide heavy body. Its back is olive green, its sides are gold-colored, and its belly is bright yellow. The mirror carp has only three or four rows of huge scales along its sides. The leather carp is almost without scales, but it has a very thick skin.

In some ways the carp is a **nuisance**. In hunting for food, the carp muddies the water. This affects the life of many plants and animals. A carp sometimes pushes more valuable fish away from their food and also eats their eggs. The carp has a habit of pulling out plants from their roots. This keeps ducks away. It is very difficult to get rid of carp. The fish can thrive even in dirty water and can also survive in very warm and very cold water.

LEARN MORE! READ THESE ARTICLES...

FISH • PIRANHAS • SALMON

Colorful carp swim in a pond outside a restaurant in Japan. In Asia and Europe carp are often raised in ponds because it is possible to grow many fish in a small amount of water.

© Wolfgang Kaehler/Corbis



**True
or false?
Carp
live in the
ocean.**



Frightening Little Fish

The piranha is found in the rivers and lakes of South America. It is a meat-eating fish with long, triangular, razor-sharp teeth. When hungry, the piranha can be both bold and **savage**. But for such a frightening fish, it is not very big. Most are about the size of an adult's hand.

Some piranhas are silver with orange undersides. Others are almost totally black. All have blunt heads and strong jaws.

In the Amazon River, there are 20 different kinds of piranhas. The most famous is the red-bellied piranha. It



Red-bellied piranha.
© Kevin Schafer/Corbis

has the strongest jaws and the sharpest teeth.

When water levels are low, this piranha hunts in schools of more than 100 fish. Many schools join in the feast if a large animal has been attacked. But normally red-bellied piranhas prefer prey only slightly larger than themselves.

Usually a group of red-bellied piranhas swim around together in search of prey.

The moment the prey is found, the fish signal each other. Piranhas have excellent hearing, so it's possible that they signal each other with sounds. Each fish in the group has a chance to take a bite and then swim away, making way for the others.

Most piranhas never kill large animals, and they almost never kill humans. The smell of blood attracts piranhas, but most of them feed on what is left by others rather than making fresh kills. For this reason their reputation for being ferocious is not deserved.

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CARP • FISH • SHARKS



Why do you suppose that when water levels get low, piranhas hunt in larger schools than they would otherwise? (Hint: How much of your body can you fit underwater in the tub once you start letting the water out?)

Groups of piranhas hide out and chase and attack fish that swim by.
© John Madere/Corbis

PIRANHAS

DID YOU KNOW?
The name "piranha" comes from the Portuguese words for "fish" and "tooth."

Answer: When river water levels are low, there's less room for fish to spread out, so piranhas have to hunt together in large groups.



A photograph of several salmon swimming in a river. The water is turbulent and white with foam, suggesting a fast-moving current or a waterfall. The salmon are silvery with a hint of pink on their sides. The background shows dark, rocky banks.

DID YOU KNOW?

Each generation of salmon returns to the same river, to the same spot, to lay their eggs every year. So a salmon's parents, grandparents, and great-grandparents all chose the same river.

Leaping Up the Waterfall

These fish aren't going down a waterfall. They're going up! Not much can stop these big strong salmon—not even a waterfall. The salmon are swimming up the river to return to the quiet waters where they **hatched**. They're returning in order to spawn—that is, to lay their own eggs. They started their journey far out in the ocean.

Somehow the salmon manage to find the river they are looking for. Night and day they swim on. They eat nothing at all after getting into their river. Finally, they reach the waters where they came from.



Male sockeye salmon.
© Natalie Fobes/Corbis

We don't know how salmon can find their way on this long trip up the river. But we know what they do when they reach the end. At the bottom of the stream, the mother salmon digs a long hole with her tail and **snout**. She fills the hole with thousands of tiny eggs. She covers the

eggs with sand to keep them safe.

The eggs hatch. When the baby salmon are about as long as your finger, they are big enough to start the swim to the ocean. They float backward down the long river—tails first and heads last! They seem to steer better that way.

Many of the babies never reach the ocean because there are too many enemies. Birds, bears, and bigger fish along the way love to eat them. The salmon that do reach the ocean will one day start the long hard trip up the river.

LEARN MORE! READ THESE ARTICLES...

CARP • FISH • SHARKS

These Pacific salmon are trying to leap up a waterfall of the Brooks River in Katmai National Park, Alaska, to spawn upstream.

© Galen Rowell/Corbis



True or false?
Salmon travel upstream against the river current to lay their eggs.



Predators of the Sea

When the first dinosaurs walked on Earth, sharks were already swimming in the sea. The dinosaurs are long gone, but sharks are still a force to be reckoned with.

Great white sharks, in particular, are feared as man-eaters. It's hard to fight them, because they are so strong and fast in the water. Their tough



(Top) Scalloped hammerhead shark;
(bottom) swimming shark.

skin is protected by tiny toothlike scales. In their big mouths are rows and rows of sharp teeth that rip like the edge of a saw. Sharks continue to grow teeth all their lives. A great white can make a quick meal out of almost anything!

The hammerhead shark can also be dangerous. Don't be fooled by its awkward-looking rectangle of a head. In general, most shark attacks take place in shallow water, where sharks sometimes go to hunt for fish. A hungry shark can easily mistake a human arm or leg for a tasty fish.

Most kinds of sharks are not dangerous to people. This includes the largest shark of all, the whale shark. Whale sharks can be 50 feet long, but they feed on small

fish and on tiny life-forms called plankton. Other sharks eat fish of all sizes. The shark appears out of nowhere, often from below, to take its prey by surprise.

Did you know that a shark has to keep swimming all the time? Its body is made in such a way that if it doesn't swim, it will sink to the bottom of the sea. Good thing sharks know how to sleep while they swim!

LEARN MORE! READ THESE ARTICLES...
DEEP-SEA LIFE • FISH • PIRANHAS



Find and correct the error in the following sentence:
Hammerhead sharks got their name because they bash their prey over the head.

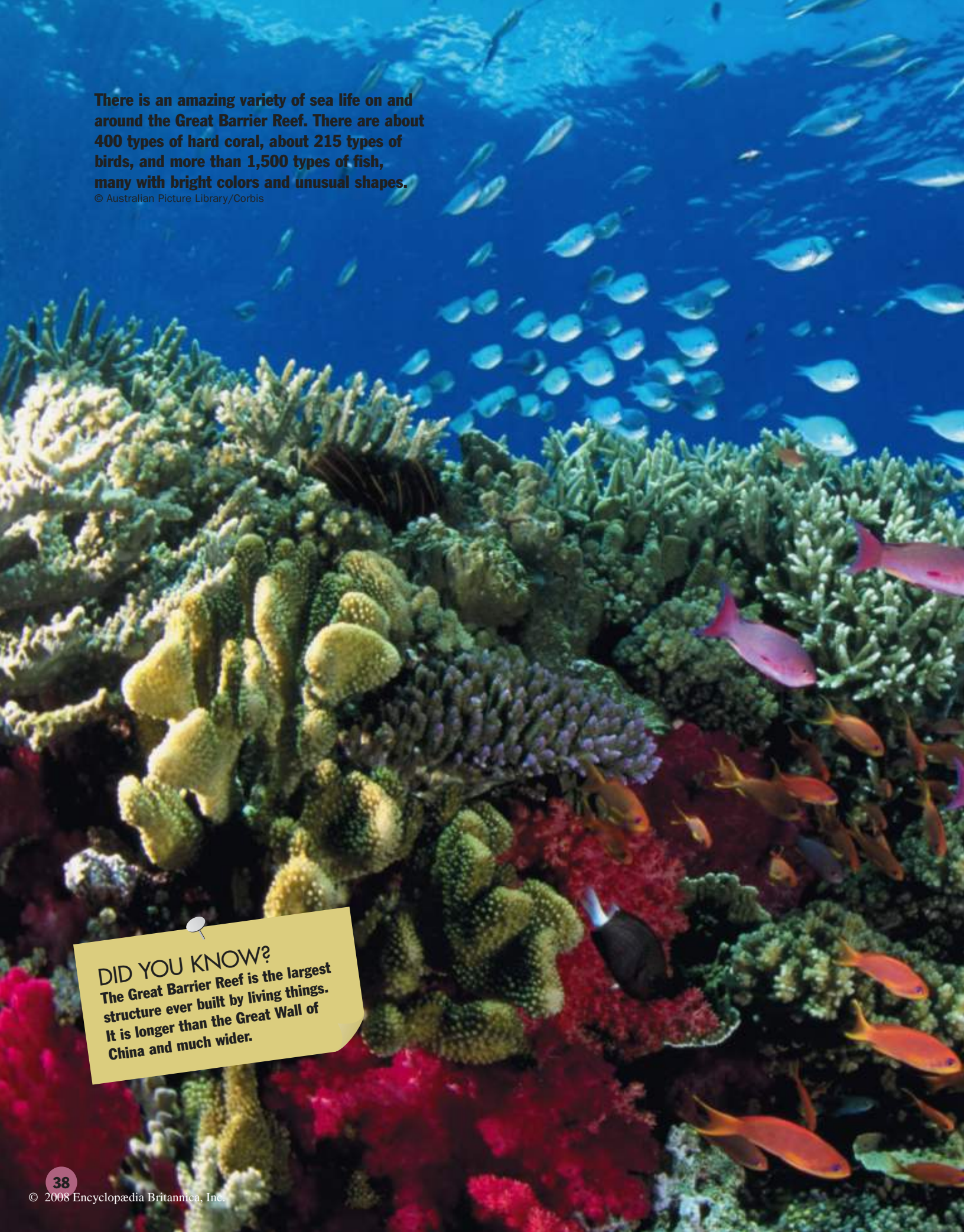
DID YOU KNOW?
Unlike most other fish, sharks don't have hard bones. Instead, their skeletons are made of cartilage, the same material that human noses and ears are made of.



Scuba divers photograph a whale shark. Whale sharks usually swim slowly near the surface and have even been hit by ships.

© Jeffrey L. Rotman/Corbis





There is an amazing variety of sea life on and around the Great Barrier Reef. There are about 400 types of hard coral, about 215 types of birds, and more than 1,500 types of fish, many with bright colors and unusual shapes.

© Australian Picture Library/Corbis

DID YOU KNOW?
The Great Barrier Reef is the largest structure ever built by living things. It is longer than the Great Wall of China and much wider.

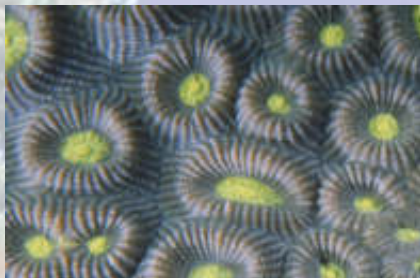
Builders in the Sea

A coral is a soft little sea animal that looks like a bit of jelly. It is no bigger than the end of your little finger. At one end it has a mouth surrounded by little arms called “tentacles.” The tentacles gather food. When they touch a tiny plant or animal floating nearby, they pull these inside the mouth.

The baby coral swims through the water until it finds a place to build its house, and then it never swims again. Using special glue



© Royalty-Free/Corbis



© Royalty-Free/Corbis

(Top) Orange cup coral;
(bottom) yellow and gray coral.

from inside its body, it sticks itself to a rock or to another piece of coral. Once it is stuck, it starts to build itself a house with a juice from its body that turns into a kind of stone. The hard little shell houses are called coral too.

In the ocean where the water is warm, the coral grows in lovely ocean gardens. It grows in just about every color and shape you can think of. It may grow to look like lace, a fan, a leaf, a brain, the horns of a deer, or a ribbon.

One day a bud grows on the coral. This bud grows into a new coral animal. After many years there are so many coral houses built on top of one another and next to each other that they become a great wall called a “reef.”

Sometimes coral may grow together to form a reef a hundred miles long. The largest coral reef in the world is the Great Barrier Reef near Australia. It is more than 1,250 miles long.

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DEEP-SEA LIFE • MOLLUSKS • SPONGES



Two parts
of the animal
are called coral.
What are they?

Answer: Coral refers to the soft jellylike animal living inside the hard shell, as well as to the shell itself. People also call many of these shells stuck together “coral.”



Flashing Lights!

It is very dark deep below the surface of the oceans of the world. This dark area is called the “**abyssal** zone.” It is a black, soundless place where the water is very still. This zone lies thousands of feet below the water’s surface.

You wouldn’t think it, but there are many kinds of living things to be found in the abyss. For a very long time, people believed that nothing could live down there because there isn’t any light. But scientists who investigated the deep sea found plenty of life!

Many forms of life were discovered near cracks on the ocean floor. These are called “rift communities.” The huge cracks, or fissures, are



Deep-sea anglerfish.
© Bruce Robinson/Corbis

between two of the **plates** that make up the Earth’s crust. These fissures are hot-water vents that raise the temperature of the water around them. The fissures are rich in **minerals**.

Deep-sea animals include certain kinds of squid, octopuses, worms, and fish. Because it is difficult to study animals at such levels, not much is known about their behavior or surroundings. But it is known

that deep-sea animals have special features that allow them to live in conditions in which other animals could not. These features are called **adaptations**.

Many deep-sea fish and other creatures flash with their own lights. This ability to give off light is called “bioluminescence.” It is an adaptation for living in the darkness of the deep sea. Some deep-sea animals have colored lights on different parts of the body. Their bodies keep flashing on and off. It is possible that the animals are speaking to each other with their lights.



**Fill in
the blank:
The deepest
part of the ocean
is called the
_____ zone.**

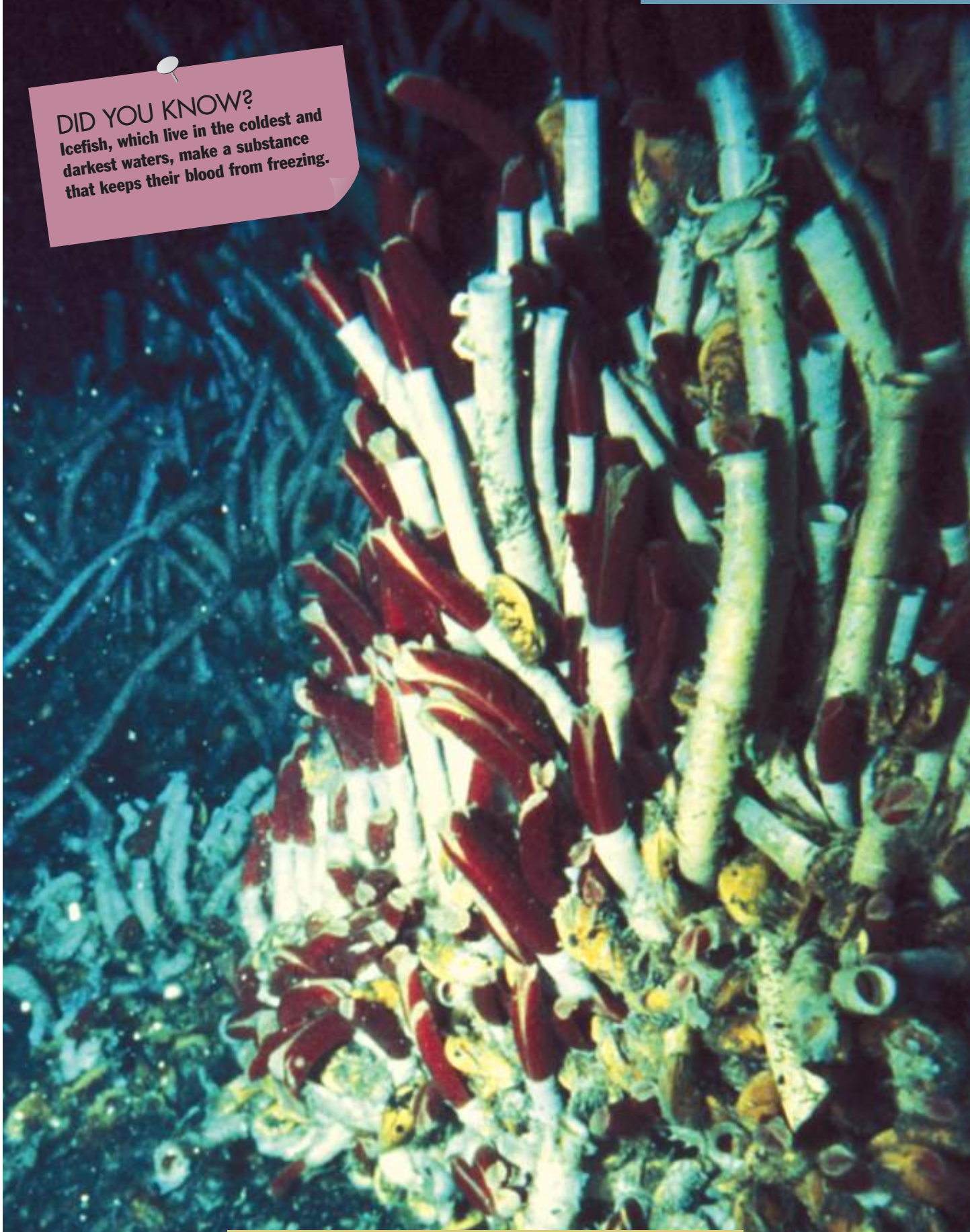
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MOLLUSKS • OCTOPUSES • SPONGES

Tube worms are just one example of the many types of life found deep in the ocean. They are worms that live inside tubes that are attached to the ocean floor.

© F. Grassle, Woods Hole Oceanographic Institution

DID YOU KNOW?
Icefish, which live in the coldest and darkest waters, make a substance that keeps their blood from freezing.





SEARCH LIGHT



**Can you
think of one
way that jellyfish
and fish are similar?
What's one way that
they're different?**

Boneless Blobs of the Sea

A jellyfish is not a fish at all. Unlike fish it has no bones, and most of its body is like jelly. It does not have a brain or a heart. What it does have is a set of **tentacles** that can sting its prey—or a person!

Jellyfish are related to the corals and the sea anemones. They can be found in all oceans. There are about 200 kinds of jellyfish, in different forms, sizes, and colors. Some jellyfish are barely large enough to be seen. Others are six feet or more around. Jellyfish may be see-through or brown, pink, white, or blue. Some kinds glow in the dark sea.



Jellyfish in dark waters.
© Jeffrey L. Rotman/Corbis

A jellyfish usually has the shape of an umbrella. It can have a few or many tentacles. Sometimes it has simple eyes around the edge of the “umbrella.” The mouth and the stomach are in the middle of the “umbrella.” The jellyfish has simple muscles on the underside that **contract** the body, much like the closing of an umbrella. This helps it swim.

Inside the tentacles of a jellyfish are poisonous stinging cells. These cells can stun small animals, which the jellyfish then pulls into its mouth. Some jellyfish feed on tiny animals and plants that their bodies catch as they drift through the water.

Some jellyfish can be very dangerous to humans. Even a small sting from the jellyfish called sea wasps can cause death within a few minutes. It’s best just to look at jellyfish from a distance and not get too close.

LEARN MORE! READ THESE ARTICLES...
CORAL • DEEP-SEA LIFE • OCTOPUSES


Jellyfish sometimes sting swimmers who accidentally brush up against them in the water. Even dead jellyfish that have washed up on the beach can be dangerous and should not be touched.

© Danny Lehman/Corbis

DID YOU KNOW?
Sometimes a jellylike blob breaks away from a jellyfish and grows into another adult jellyfish.

Answer: The most obvious thing that jellyfish and fish share is their ocean home. One big difference between them is that jellyfish have no bones but fish do.





DID YOU KNOW?

Mollusks have been a popular food for humans for thousands of years. Scientists have found old piles of shells, some over ten feet tall, where ancient people threw the trash from their meals of clams and oysters.

Shell-Dwelling Animals

There are many different shelled animals. The smallest live in shells as tiny as the letter “O.” The largest, such as the giant squid, weigh more than 4,000 pounds! Some of these animals belong to a group called “mollusks.” And you might be surprised to know that there are about 100,000 kinds of them!



Snail on a child's hand.
© Lance Nelson/Corbis

Most mollusks—such as snails, clams, oysters, and mussels—have shells. But some, such as octopuses and squid, have little or none at all. And not all kinds of animals with shells are mollusks. Crabs and lobsters have shells, but they are not mollusks.

Although most mollusks live in the water, some are found on land. Snails live in forests and gardens.

Newborn mollusks are squishy and helpless. They need protection from enemies that would eat them. They get this protection from the shell they build around themselves. Shells are really one-room houses that mollusks build out of their own bodies. It's as easy for them to do this as it is for you to grow fingernails. Each shell has room for just one animal.

Mollusks eat tiny bits of food that float with the moving water. They also eat the **algae** that cover rocks. Part of this food is used to build their bodies. The rest helps them build their shells. A mollusk and its shell keep growing as long as the mollusk lives.

When a mollusk dies, it leaves behind its shell. That is why most of the shells you find on the beach are empty. Mollusk shells can last for thousands of years—a reminder of how long mollusks have been living on the Earth.

LEARN MORE! READ THESE ARTICLES...
CORAL • OCTOPUSES • SPONGES

Mussels, pictured here in a tide pool, are a kind of mollusk. Mussels are found all over the world, mostly in cool seas.

© Kennan Ward/Corbis



Which of the following are mollusks?

- crabs
- snails
- shrimps
- oysters
- squid





**What
are two ways
that an octopus
can escape
from an enemy?**

Eight-Armed Wonders

People used to tell scary stories about a deep-sea monster that wrapped its many long arms around a ship and dragged it down to the bottom of the ocean. They called the monster a “devilfish.”

Today we know that this wasn’t a monster at all. It was an octopus—an animal with eight arms that lives in the ocean. Octopuses are members of an animal group called mollusks, which includes squid, clams, and oysters.



Suckers on the underside of the tentacle of a giant Pacific octopus.
© Stuart Westmorland/Corbis

There are nearly 50 kinds of octopuses. Some are only a few inches long. The largest is longer than 30 feet and may weigh more than 150 pounds. But no octopus grows large enough to attack a ship!

An octopus usually lives alone among the rocks on the bottom of the ocean. Sometimes it moves rocks with its long arms, or **tentacles**, to make a little cave for itself. Underneath each tentacle are many little round suckers, or **suction cups**. These help the octopus climb over rocks and hold on to things.

Octopuses like to eat shellfish such as crabs, lobsters, and mussels. An octopus will crawl about on its rubbery tentacles as it looks for food. But it can also swim very fast. An octopus sometimes hunts fish, chasing them until they are too tired to swim anymore. Then the octopus tightly wraps its arms around the fish and eats them.

But the octopus has enemies too. It usually tries to hide from them. Many octopuses can hide by changing their colors to match the area around them. If that doesn’t work, the octopus shoots black ink into the water. The cloudy water confuses the enemy and helps the octopus get away.

LEARN MORE! READ THESE ARTICLES...
DEEP-SEA LIFE • JELLYFISH • MOLLUSKS

An octopus has eight arms, or tentacles. Its name comes from a Greek word that means “eight-footed.”
© Stephen Frink/Corbis

DID YOU KNOW?
Octopuses are very smart. In fact, next to dolphins and whales, the common octopus is perhaps the smartest animal living in the ocean!





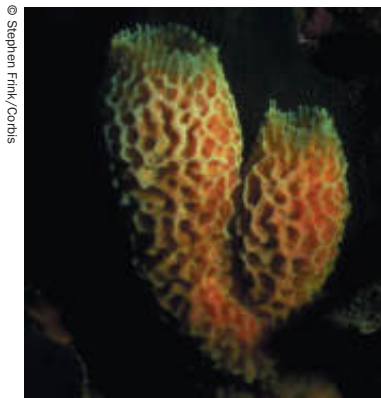
Which of the following statements are true about sponges?

- a) Sponges can be found mainly in the ocean.**
- b) Sponges eat by straining the water around them.**
- c) The sponges in your house probably came from the ocean.**

Plant or Animal?

Sponges are strange animals. They don't have the body parts—inside or outside—that we expect an animal to have. They don't even move around. Instead, they stay attached to an underwater rock or coral reef,

DID YOU KNOW?
Not all sponges are spongy.
Some have glasslike skeletons.



(Top) Vase sponge; (bottom) marine sponges.

just like plants. For a long time, people thought sponges were plants. Scientists decided that sponges are animals only after watching them eating food by drawing it into their bodies.

There are nearly 5,000 different kinds of sponges. Most live in the ocean, but a few like freshwater. Sponges may be flat like spreading moss. Or they may look like trees with branching arms. Some are as tiny as a bean, while others are as tall as a person. Some are smooth and mushy, while others are rough, hard, and prickly. Some are dull and drab, while others are brightly colored.

A sponge gets oxygen to breathe and food particles to eat by straining water through its body. Sometimes fish, shrimp, and other creatures live inside a sponge. A few sponges attach themselves to crab shells and go wherever the crab goes.

People dive to collect sponges or pull them up with hooks. Afterward the sponges are dried, cleaned, and trimmed. The fleshy parts are thrown away, and only the “spongy” skeleton is used. The ancient Greeks and Romans used sponges to pad their armor and helmets. People still use sponges for scrubbing themselves clean, for painting, and for making medicines. However, factory-made sponges have taken the place of natural sponges in most homes.

LEARN MORE! READ THESE ARTICLES...

CORAL • JELLYFISH • MOLLUSKS

A school of fish swims near some sponges. A few animals eat sponges, but most leave them alone because of their unpleasant taste and smell.

© Royalty-Free/Corbis

Answer: a) Sponges can be found mainly in the ocean.
b) Sponges eat by straining the water around them.



SEARCH LIGHT



The Cape buffalo are large animals with large horns. They were once hunted to the point of being endangered. Why do you think people were hunting them?



In China, as in other parts of the world, water buffalo like this one help plow the field.

© Vince Streano/Corbis

Water-Loving Beasts

The American animal that most people call a buffalo is actually a bison. True buffalo live in warm places in Asia or Africa. The best known among them is the Indian buffalo. It's also called a water buffalo. That's because these animals love to lie in the water or in mud. It helps them to stay cool and keep the flies away. Buffalo eat mostly grass.

Asian water buffalo have been raised and used by people for many, many years. They carry loads and pull carts. Some help farmers to plow fields, especially in India and East Asia. But that's not all. Some people in Asia eat buffalo meat. They use its skin for making leather goods. Buttons and bangles and many other things are made from the buffalo's horns. And buffalo milk is rich and full of cream.

The water buffalo of Asia are heavily built and look like oxen. Some may be taller than five feet at the shoulder. The smallest buffalo are the anoa of Indonesia and the tamarau of the Philippines. They are just about three feet high.



Mud-caked buffalo in Kenya.
© Yann Arthus-Bertrand/Corbis

All buffalo have horns, but not all buffalo horns are the same. Some curve backward. Some curve inward. The Asian water buffalo and the African Cape buffalo have the biggest horns. The horns of the anoa are short and nearly straight.

Sadly, there are few Cape buffalo now. Because they were considered dangerous to humans, they have been overhunted.

DID YOU KNOW?
Mozzarella cheese used to be made from water buffalo milk. True mozzarella still is.

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HIPPOPOTAMUSES • WALRUSES • WHALES

Answer: Cape buffalo were overhunted for two main reasons. First, hunters enjoyed having the Cape buffalo—like other large animals—as a trophy, mainly for its large horns. Second, people were afraid of the Cape buffalo and thought it was dangerous. So, like wolves and snakes in other countries, the buffalo were often killed on sight.



Kings of the River

Underneath the water in the rivers of Africa, a giant animal moves along the muddy bottom and eats water plants. It's named after a horse, looks something like a pig, and is larger than a crocodile. It's the king of the river, the hippopotamus. Its name is a combination of two Greek words that join to mean "river horse."

An African folktale describes how God created the hippopotamus and told it to cut grass for the other animals. When the hippo discovered how hot Africa was, it asked God if it could stay in the water during the day



(Top) A herd of hippos in Botswana;
(bottom) fully submerged hippopotamus.

and cut grass at night when it was cool. God agreed. However, he was worried that the hippo might eat the river's fish. The hippo, however, ate only plants. At night, hippos still go ashore and wander in herds, eating grass.

Hippos have barrel-shaped bodies, short legs, and four toes on each foot. Adult hippos weigh more than 6,000 pounds. The biggest may reach 15 feet in length and stand 5 feet tall at the shoulder. Although the hippo looks clumsy on land, it is well equipped for a life in the water. It swims easily, and when it stays underwater, little flaps of skin close its **nostrils**.

When a hippo is mostly **submerged**, the only things you can see are its rounded eyes, tiny ears, and raised nostrils.

Sometimes a hippo lifts its head out of the water and roars. When that happens, you will see an enormous red mouth and very long teeth.

Because of the hippo's great size, its only enemies are lions and humans.

LEARN MORE! READ THESE ARTICLES...

ALLIGATORS AND CROCODILES • BUFFALO • WALRUSES



**Find and correct the error in the following sentence:
When a hippo goes underwater, it constantly blows water out of its nostrils.**



DID YOU KNOW?
Baby hippos are born in the water and can swim before they can walk.

A hippopotamus stands along the shore of Lake Manyara in Tanzania.

© Wolfgang Kaehler/Corbis



DID YOU KNOW?
The manatee has an unlikely close relative on land: the elephant. It's thought that the manatee's early ancestor was a plant-eating wading animal.



The slow-moving manatee lives in warm shallow coastal waters. Because manatees can't see very well, they are often injured by motorboats in their feeding areas.

© Douglas Faulkner/Corbis

Mermaids of Yore?

Stories about mermaids tell of creatures that have the head and body of a human and the tail of a fish. These stories may have come from people who saw manatees swimming and didn't know what they were.

A manatee is a large stoutly built animal with a **tapered** body that ends in a flat rounded tail. Adults grow to about 10 feet long and 800-1,200 pounds. The manatee has a thick tough skin and is nearly hairless. It uses its flippers for turning, holding food, walking on the bottom of rivers, and holding its young.



Boater's warning sign.
© Catherine Karnow/Corbis

Manatees, especially mothers and their calves, talk to each other through chirps, grunts, and squeaks. The other members of a group communicate by touching **muzzle** to muzzle. Manatees may live alone or in groups of 15 to 20.

They live in shallow waters along the coasts of oceans or in rivers that are rich in the plant life they eat. The Caribbean manatee lives from the coasts of the southeastern United States to those of northern South America. The Amazonian manatee, as you might guess, lives in the Amazon River and other nearby freshwater. And the African manatee is found in the coastal waters and slow-moving rivers of tropical West Africa.

Manatees have small eyes and can't see very well. They don't move very fast either. Since manatees can't **tolerate** cool temperatures, they live in warm waters—places where lots of people like to live as well. Many manatees have been killed or injured when people drive their motorboats into the manatees' feeding areas. The manatees can't see the boats and don't move fast enough to get out of their way.

LEARN MORE! READ THESE ARTICLES...
HIPPOPOTAMUSES • WALRUSES • WHALES



Mother manatees and their calves communicate through
a) chirps, grunts, and squeaks.
b) snaps, crackles, and pops.
c) dings, rattles, and creaks.



DID YOU
KNOW?

**Musk rats
have been
known to
hold their
breath
underwater
for 20 minutes
or more.**



Musk rats look like a cross between a rat and a beaver. They live in water, where they build a home of mud and plants that rises above the water's surface.

© Scott Nielsen/Bruce Coleman

The Town Builders

Muskrats are ratlike rodents that look a little like small beavers and live in water. The animal gets its name from the two musk **glands** under its tail. The glands give off a heavy, musky smell. Muskrats were originally found only in North America. People took them to Europe and Asia about 100 years ago, and they soon made themselves at home in those regions as well.

Muskrats build their houses in water, as a part of a “town.” Mounds of mud, cattails, and other plants are heaped up into a dome-shaped structure. This rises above the surface of the water. The animals dig tunnels from under the water up into the mound. They then hollow out a room at the top, a few inches above the waterline.

Muskrats also dig narrow **channels** through the surrounding plant growth. The channels connect to each other and to other mounds. Muskrats can sometimes be seen swimming along these channels. They feed on different kinds of **sedges**, reeds, and roots of water plants, as well as **mussels**, crayfish, salamanders, and fish.

Muskrats have small eyes and ears and a long scaly flat tail. They use the tail as a **rudder** for steering or changing direction while swimming. The hind feet are partially webbed and are used as paddles.

Muskrat fur is waterproof and keeps the animals warm. Muskrats continue to be trapped because of the quality of that fur. And because of that, there are far fewer muskrats today than there were in the past.

LEARN MORE! READ THESE ARTICLES...
MANATEES • MOLLUSKS • WALRUSES



Are
muskrats
herbivores
(plant eaters)
or carnivores
(meat eaters)?



SEARCH LIGHT



Fill in
the blank:
All walruses have
_____ growing
from the sides of
their mouths that help
them fight, cut
holes in the ice, and
drag themselves out
of the water.



DID YOU KNOW?
The scientific name for the walrus,
Odobenus rosmarus, translates into
English as "tooth-walking sea horse."

The Whale Horses

In the cold Arctic seas of Europe, Asia, and North America, there lives a large creature called the “walrus.” Its name is an English version of the **Scandinavian** word *hvalros*, meaning “whale horse.”

The walrus has a stocky body topped by a rounded head. It has small



Group of walrus gathered on rocks.
© Wolfgang Kaehler/Corbis

eyes like those of a pig and a short broad mouth. Its mouth is covered with stiff whiskers. Every year, the walrus grows a new set of whiskers. An adult walrus can grow to twice the length of a Ping-Pong table.

All walrus have long **tusks** growing on each side of the mouth. The tusks are very handy. The walrus uses them to fight, cut holes

in ice, and pull itself out of water. Walrus spend nearly their whole life at sea. However, they often climb onto ice or rocky islands to rest and to have babies.

The walrus has flippers. In the water the flippers help the animal swim. On land the walrus uses them to walk. The walrus also uses its flippers to hold prey such as fish, but clams are its favorite food. Sometimes the animal feeds on young seals, though this happens only when it fails to find other food.

Walrus are social animals and live in groups of more than 100 members. There are two types of walrus, named for the two major oceans where they live: the Pacific walrus and the Atlantic walrus. The Pacific walrus is heavier and has longer tusks than the Atlantic walrus.

In the late 20th century, efforts were made to protect walrus. This helped increase the population of the Pacific walrus.

LEARN MORE! READ THESE ARTICLES...

MANATEES • PENGUINS • WHALES

Walrus are known for their long tusks. They use their flippers to help them walk on land.

© W. Perry Conway/Corbis

Answer: All walrus have tusks growing from the sides of their mouths that help them fight, cut holes in the ice, and drag themselves out of the water.



The Biggest Animals of All

Whales live in the water. They look like fish. They swim like fish. But they aren't fish at all. Whales are "aquatic mammals." "Aquatic" means they live in water. Mammals are warm-blooded creatures that give birth to live young and feed them with milk.

Whales can't stay under the water all the time as fish do. They have to come up for air from time to time. They breathe through blowholes at the top of their heads. When their warm breath hits the colder air outside, it makes a cloud of mist called a "spout." You can spot a whale by its spout.

Fish can't make sounds. But whales can make two kinds of sounds. The first sounds like a bark, or a whistle, or sometimes a scream. Whales make these sounds to speak to each other. Some whales also make very loud, low sounds that other whales can hear from many miles away. This sound can be heard only underwater.

The biggest whale of all is the blue whale. It can be 110 feet long and weigh around 150 tons. That's more than ten buses put together! Even a baby blue whale is huge.

© Amos Nachoum/Corbis



© Sea World of California/Corbis



(Top) Killer whale; (bottom) beluga whales.





Why do you suppose that some whales' sounds can be heard only underwater? (Hint: Who's listening?)

Finding food is a simple matter for blue whales. They just swim along with their huge mouths open, and thousands of tiny sea creatures flow in. But blue whales have no teeth. Instead, they have strings of hardened skin, like our fingernails, that hang from the roof of the mouth. This hardened skin is called “**baleen**” and is used as a strainer to let out the water while holding back the captured sea creatures.

LEARN MORE! READ THESE ARTICLES...
 MANATEES • PENGUINS • WALRUSES



This humpback whale sails above the water as it grabs a breath of air. This act is called “breaching.”

© Brandon D. Cole/Corbis

DID YOU KNOW?
 Some whales leave the water and park themselves on a beach. They may stay there so long that they die. Strangely, other whales often join the “beached” whale—possibly to keep the first one company, according to some researchers.

Answer: Whales “talk” to other whales, so it makes sense that their sounds would be heard where the whales spend most of their time—under the water.



G L O S S A R Y

abyssal having to do with an area of the ocean that is thousands of feet below the surface of the water

adaptation in biology, a change in an organism or its parts that allows the organism to survive better in its environment

algae (singular: alga) group of organisms that are similar to plants and live mostly in the water

balen a hardened substance from 2 to 12 feet long found in two rows along the upper jaws of certain whales

bask to lie or relax in a warm place

carcass dead body or leftover parts of an animal

channel narrow passageway between two areas of water

colony (plural: colonies; adjective: colonial; verb: colonize) 1) in general, a settlement established in a distant territory and controlled by a more powerful and expanding nation; 2) in biology, a group of similar organisms that live together in a particular place

contract to make smaller by tightening or squeezing together

gills pair of breathing organs found in fish and some other water-dwelling animals

gland structure in animals that produces special substances, such as sweat or oil or milk

hatch to come forth from an egg or other protective covering during development

lung organ that helps some animals breathe air

migration movement from one country or place to another

mineral substance that is not animal or plant and is an important nutrient for living things

mussel kind of mollusk (shellfish)

muzzle animal's snout (jaw and nose)

nostril one of the outer openings of the nose

nuisance annoying or troublesome person, thing, or event

pied having blotches of two or more colors

plate in the Earth sciences, a large segment of the Earth's crust (outer layer) that is constantly in motion

rudder flat piece attached to the back of a boat or ship and used for steering

savage extremely violent

scale in biology, one of the small, stiff, flat plates that form an outer covering on the body of some animals, especially fishes and reptiles

Scandinavia area in northern Europe that includes the countries of Denmark, Norway, and Sweden

sedge plant group found in marshes and related to grasses and rushes

snout long projecting nose, like that of a pig; also, the long front part of the head of some animals, such as alligators

squid sea mollusk that has a long thin body with eight short arms and two usually longer tentacles

sturdy physically strong and healthy

submerge to put underwater

suction holding onto something by sucking

tapered little by little becoming smaller toward one end

tentacle long arm-like structure on certain animals, usually found sticking out near the head or mouth and used especially for feeling or grasping

tolerate to put up with; also, to be able to survive

tropical having to do with the Earth's warmest and most humid (moist) climates

tusk long tooth that overhangs when the mouth is closed and serves for digging food or as a weapon

waterproof not affected by water

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How did the “dabbling duck” get its name?

What fish can leap up waterfalls?

Is a sponge a plant or an animal?

What animals can live both in water and on land?

In *Creatures of the Waters*, you'll discover answers to these questions and many more. Through pictures, articles, and fun facts, you'll learn about the great diversity of animal life found in waters around the world.



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