

SWIM LIKE A PENGUIN



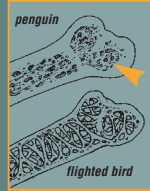
Penguins dive deeper, swim faster, hold their breath longer and spend more time in the ocean than any other type of bird.

Penguins can't fly. But they look like they are flying and use the same movements when they swim.



PORPOISING

Penguins use their torpedo-shaped body to shoot through water at speeds of 15 miles per hour or more. Some penguins leap into the air while swimming—a trick known as porpoising.



ADAPTATIONS

Their powerful, flipper-like wings propel them through the ocean. Penguins are awkward on land, but their short legs and webbed feet are the perfect rudder system underwater. And unlike other birds, penguins have solid bones. This added weight counteracts their natural buoyancy and helps them move quickly through water.



Just like penguins, sea turtles use their front limbs to swim and their hind limbs to steer.

LOOK

Can you find one of the sea turtles in this exhibit?



Dolphins and whales move their tail flukes up and down to push them through the water. This is powerful enough to allow them to jump completely out of the water, known as breaching.

Most fish swim by flapping their tail fin from side to side and using their side fins to steer.

Some animals don't swim much at all. Most jellies—which you know as jellyfish—end up drifting where the current takes them.



SAVE

A PENGUIN FROM POLLUTION.

Penguins and other marine animals need clean, healthy oceans.

- Do your part by disposing of trash, motor oil and household chemicals properly.
- Reduce your use of garden fertilizers and chemical cleaners.

EAT LIKE A PENGUIN



Penguins only eat seafood and swallow their food whole since they don't have teeth.

BEAKS

They use their powerful, hooked beaks to catch fishes, squid and krill. Their tongues have a rough, Velcro-like texture that helps them hold and swallow their slippery food.



»»» The New England Aquarium's 66 penguins eat nearly 600 pounds of sardine, capelin, smelt and herring every month. Most of them eat five to ten fishes every day.



Shorebirds—like the piping plover in this exhibit—use their dainty beaks to probe for small creatures in the sand.

LOOK How many birds can you find in the *Shorebirds* exhibit?



Flamingos have comb-like structures in their beaks that help capture and separate shrimps and small fishes from the mud on the bottom of shallow lakes.



Birds of prey—hawks, eagles and falcons—hunt other birds, fishes and small animals. These predators use their hooked bills to tear food into bite-sized pieces.



Did you know?

Birds are not the only animals with beaks. Hidden under all those arms, every octopus has a powerful beak that it uses to crack the

shells of crabs and clams. **Parrotfishes** use their beaks to scrape algae off coral and rocks. Australia's platypus has a sensitive duck-like bill that it uses to find insects hiding in streams and riverbeds.

SAVE A PENGUIN'S FOOD.

Penguins eat a lot of fishes, but some fish populations have been over-fished, which means there might not be enough left for penguins and other marine animals. People must protect and carefully manage fish populations to make sure there are enough for animals and people.

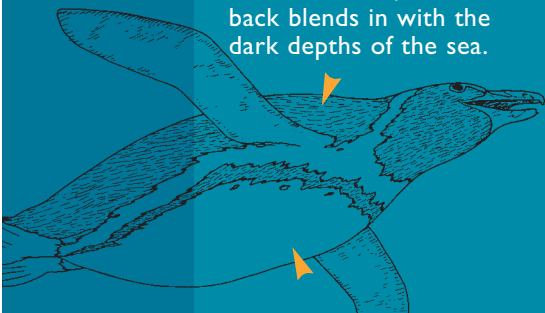
DRESS LIKE A PENGUIN



Penguins look like they are always ready for a black-tie event, but their formalwear is no fashion statement.

COUNTERSHADING

Their tuxedo-like black and white coloring is extremely effective camouflage—known as countershading—which helps them hide from predators and prey in the open ocean. For example, if a shark or other predator swims below a penguin, the penguin's white belly blends in with the bright sunlight coming from above. Likewise, if a penguin swims below some tasty fish it wants to catch, its black back blends in with the dark depths of the sea.



CHECK IT OUT

How many animals with countershading can you find?

Sharks, rays and many other large sea creatures also have dark backs and light stomachs. These animals also use their countershading to hide.



Seadragons use shape, color and movement as camouflage. These unusual fish look just like a piece of kelp as they drift through the water.



>>> Visit the Australian Temperate Reef exhibit on the second level to see our seadragons.



Some fishes, including flounders, can actually change their colors to blend in with their surroundings.

>>> Visit the Sandy Bottom Community exhibit on the third level and try to find the flounder.



Some animals want to be noticed. Certain frogs, fishes and insects are poisonous, and use bright colors to warn predators that they are not good to eat.

SAVE A PENGUIN FROM INTRODUCED PREDATORS.

Penguins are adapted to avoid predators in the ocean. But introduced predators on land, such as rats, weasels and dogs, are threatening many penguin species. Scientists and conservationists around the world are working to control or remove introduced species.

GROOM LIKE A PENGUIN



Penguins have about 80 feathers per square inch — more than any other bird. Penguins need all of those feathers for two important reasons: keeping warm and keeping dry.



FEATHERS

The fluffy down at the base of each feather traps air near the penguin's skin. This air layer helps penguins keep warm, even in cold air and frigid water. When penguins are too warm, they fluff their feathers to release extra body heat.

The outer tip of each feather is stiff and small. Every feather tip overlaps with those around it, like shingles on a roof. This is what keeps penguins dry in the ocean. The tips of the feathers get wet, but the fluffy down stays dry and warm.

MOLTING AND GROOMING

Penguins replace their feathers, or molt, once a year. This means penguins have to keep their feathers healthy for a whole year. Because of this, most penguins spend hours every day taking care of their feathers, a behavior known as grooming or preening.



molting penguin



Photo: Denise D'Alora

A grooming penguin first cleans each feather, removing dirt and water. Then it conditions the feathers by spreading out oil from a gland at the base of its tail.



Fur seals have more than 300,000 hairs per square inch on their bodies. Like penguin feathers, these hairs keep fur seals warm and dry—and fur seals also spend lots of time grooming.

SAVE A PENGUIN FROM OIL SPILLS.

Big oil spills and small, slow leaks are deadly to penguins and other marine animals. The oil coats their feathers, taking away insulation. Penguins swallow the toxic oil, causing stomach lesions or hurting their immune system. Being rescued and cleaned is their only hope.

COMMUNICATE LIKE A PENGUIN



Penguins communicate with their voices and their bodies.

Every penguin has a unique voice that they use to identify one another. They also use sound to attract attention or defend their territory.

LISTEN Can you hear them? If the penguins are being quiet, you can hear their calls at the Hear a Penguin station.

Penguins also use movements to communicate.

LOOK Can you find any penguins in the exhibit using body language? What do you think they are saying?

Ecstatic display

*"Look at me!
Look at me!"*
Single males often use the ecstatic display to attract females.



Pointing

"Back off, this is my space."
Penguins point their beaks at intruders when they wander too close.



Bowing

"I really like you."
Penguin pairs often bow to one another to reaffirm their bond.

Aggressive point

"One step closer, and I'll bite you."
If a simple point doesn't work, penguins will take a more aggressive stance.



Slender walk

"I don't want any trouble here, just passing through."
Penguins who want to avoid a fight use the slender walk when passing their neighbors.



Defensive gape

"Stay out of my territory, or else."
Gaping is defensive behavior that is used when another penguin gets too close.



Sideways stare

"You are getting too close to me."
A sideways stare is a mild threat, telling another penguin that it is too close.

KEEP WARM LIKE A PENGUIN



Not all penguins live in areas of ice and snow, but they all swim in cold water. Body size, feathers and fat help keep penguins toasty warm no matter what temperature they encounter.

WARMTH FROM SIZE

As a rule, larger penguins live in colder areas. This is because larger, rounder bodies lose heat slower than smaller, slimmer bodies. This explains why Antarctica's emperor penguins, which survive the harshest winters, are the largest penguins in the world.



The emperor penguin is the largest and best insulated penguin species in the world, and for good reason. These penguins are the only species on the planet that breeds in Antarctica during the winter.

INSULATION

Feathers and fat are also important. Their dense, overlapping feathers keep penguins dry and warm when hunting in frigid ocean waters. They also have a layer of fat, or blubber, that helps insulate them from cold conditions.



Emperor penguin pairs gather in large colonies on the ice in late fall. Females lay a single egg before returning to the sea to feed, leaving their mates to incubate the egg for months. Winter temperatures may fall to -80°F and the wind can gust to nearly 120 miles an hour. During the worst conditions, the incubating males huddle together for warmth.



Harbor seals have a thick layer of blubber that allows them to survive New England winters. If they are really cold, they tuck their thin flippers under their body.

SAVE A PENGUIN FROM CLIMATE CHANGE.

Antarctica's penguins may suffer the most from climate change. These birds need the cold. If sea temperatures and ocean levels rise, Antarctica's penguins will be in serious trouble.

- Help slow climate change by reducing your daily energy use and driving less often.

RAISE A FAMILY LIKE A PENGUIN



It takes two to raise a penguin family. Because of this, penguins form strong pair bonds that may last for years, or even a lifetime.

PARENTAL ROLES

Penguin parents share the responsibility of raising their chicks equally. Generally, once the female lays one or two eggs, she will return to the sea to eat for days or weeks. When she returns, the male goes off to eat. The parents will continue to swap feeding trips until the chick is old enough to keep itself warm.

CHICKS

The New England Aquarium has been raising penguins since 1968. Over the years, 60 penguin chicks have grown to maturity here. The chicks emerge from their eggs as adorable bundles of gray, fluffy down. Penguin chicks eat and put on weight faster than seems possible.

COLONIES

Most penguins breed in large colonies of hundreds or thousands of birds. In these crowded conditions, pairs defend tiny territories where they lay their eggs and raise their chicks. The territories are generally no larger than the distance the penguin can stretch its beak from the center of its nest.



Some penguins, such as rockhoppers, build simple nests from stones and pebbles.

Others, such as little blue and African penguins, raise their chicks in shallow burrows dug into sand, soil or guano (penguin poop).



Emperor penguins don't build a nest at all. Instead, the males carry their single egg on top of their feet, keeping it warm and protected from the harsh Antarctic winter.

SAVE A PENGUIN FROM HABITAT LOSS.

Penguins often nest on the same beaches where people work, play or relax. Although penguins often lose when penguins and people want to use the same beach, nesting habitats are being protected in some areas.



SAVE A PENGUIN



Penguins are cute and lovable. But, as much as we adore them, many penguin species are facing multiple threats in the wild.

There are many ways you can help penguins.



TAKE CARE OF THE OCEANS.

The world's oceans are all connected, and our daily actions have an impact. **Help keep the oceans clean by disposing of your trash properly and picking up litter.**

HELP SLOW CLIMATE CHANGE.

Global climate change may cause temperatures to increase, ice caps to melt and ocean levels to rise. **Help slow climate change by reducing your daily energy use and driving less often.**

MAKE A DONATION.

By supporting the New England Aquarium, you support penguins and conservation efforts here and around the world.

SPONSOR A PENGUIN.

Sponsor a penguin through our Proud Parent Program. For more information, call **617-973-0295** or visit **www.newenglandaquarium.org** and click on "Animal Sponsorship."

GIVE TIME.

The Aquarium relies on volunteers to help feed our fishes, care for our penguins and educate our visitors. Call **617-973-5235**, e-mail **voles@neaq.org** or visit **www.newenglandaquarium.org** and click on "Volunteer."

SHARE YOUR KNOWLEDGE.

Bring a friend or family member to visit the penguins at the Aquarium. **Talk with your friends about the threats facing penguins and other sea creatures. And stay informed about conservation efforts.**