

For Creative Minds

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Compare and Contrast Penguin Adaptations

Just as there are many breeds of dogs, there are different species of penguins. How are these penguins alike and how are they different?

Penguins are birds. Their wings look like flippers but the motion is the same as that of other birds flying through the air. They actually "fly" through the water instead of the air!



Rockhopper

Even though penguins spend most of their time in the water, they breathe oxygen from the air. They come up to the surface to breathe.

Some dive deep for food and can hold their breath for up to 15 minutes (Emperor). Others (Royal or Chinstrap) can only hold their breath for a minute or two.



Adelie

Their bodies are torpedo shaped to glide through the water.

Penguins have light chests and dark backs to hide (a type of camouflage called counter-shading) in the ocean. If seen from below, their light chest is hard to see in the light coming from above. Their dark back is hard to see from above against the dark depths of the ocean.



King

If warm on land, they'll hold out their flippers to cool down. Some also have patches near their eyes with no feathers where heat can escape. They can also release heat through their feet!

If cold, they'll tuck flippers close to their bodies.

They have muscular control of their feathers and can raise (to cool down) and lower them (to warm up) at will.



Royal



Macaroni

They use their webbed feet to steer while swimming.

Their ears are small holes covered with feathers. Their ears are in the same general place as our ears would be. They use sounds to find their mates and their young in crowded rookeries.

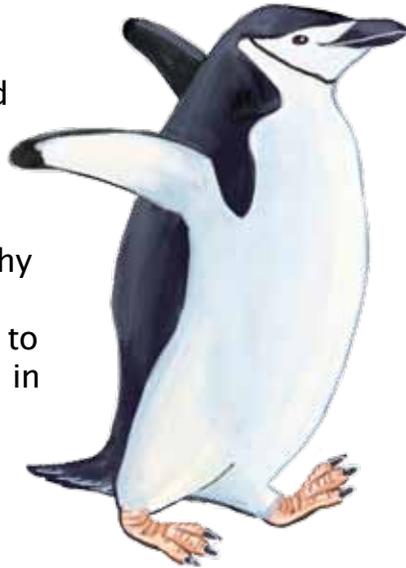
Penguins spend a lot of their time in the water but come onto ice or land to lay eggs and raise their young.

Penguins living in warmer climates nest in underground burrows, those in cooler climates make nests on the surface, and the largest (Emperor and King) penguins carry the eggs on their feet.

Penguin bills or beaks are used to catch and eat food and to defend themselves and their young.

They don't have teeth. Instead, they have fleshy spines on their tongue and inside of the beak to help keep slippery fish in their bills.

Penguins can see well in the water and on land.



Chinstrap

Penguin legs appear short because their body covers their legs almost to their ankles. That's why they waddle when they walk.

Most birds have light, hollow bones for flying. Penguins have heavy, dense bones for swimming.



African



Emperor

All birds have feathers. Some penguins have 70-80 feathers per square inch to stay warm. Penguins that live in warmer climates have fewer feathers per square inch than penguins from colder climates.

The short feathers overlap.

The outer stiff part of the feather is waterproof.

The inner part of the feather is downy and traps warm air against the body—keeping the penguin warm in cold air and water.

A layer of fat under the feathers also provides some insulation.



Galapagos



Little Blue

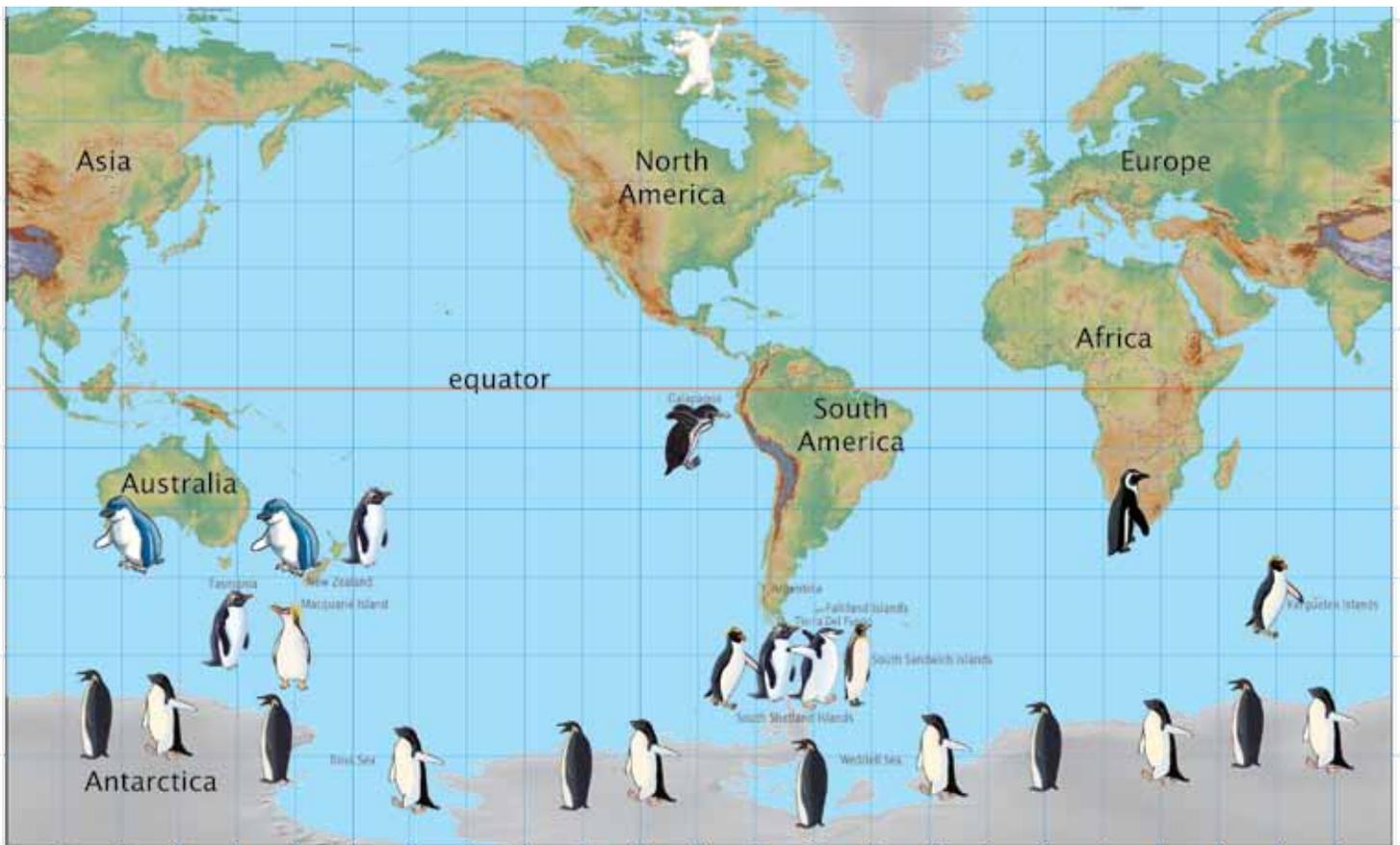
one
square
inch

While on land, penguins use their sharp toe nails to dig nests and help move. Some penguins hop, jump, or even slide on their tummies to move!

Penguins of the World: True or False Questions

Which statements are true and which are false? Answers are upside down, below.

1. Polar bears are the biggest predator of most penguins.
2. Penguins only live in the southern hemisphere.
3. Some penguins live near the equator (shown as a red line on the map).
4. Some penguins live in Southern Africa.
5. Wild penguins live along rivers in North America.



(1) False: Penguins only live in the southern hemisphere and polar bears only live in the northern hemisphere. They would never be in the same habitat. (2) True: The Galapagos penguins live near the equator. (4) True: African penguins do. (5) False: Penguins are only native to the southern oceans and around the coastlines of Antarctica, South America, South Africa, Namibia, New Zealand and Australia.

It isn't possible for individuals to have penguins as pets. You can help threatened or endangered penguins (and other animals) by "adopting" one with a donation to one of the many zoos, aquariums, or conservation programs that are working to care for these animals. Find more information and more learning activities on the book's homepage at www.ArbordalePublishing.com and click on the book's cover.



Hands On: How Tall Are Penguins?

type of penguin	inches	centimeters
Adelie penguin	20	51
African penguin	27	69
Chinstrap penguin	29	74
Emperor penguin	42	107 (1.1 m)
Galapagos penguin	21	48
King penguin	35	89
Little Blue penguin	10	41
Macaroni penguin	28	71
Royal penguin	27	69
Rockhopper penguin	21	53

What measuring tool will you use?

How tall are you? Are there any penguins about your height?



Using yarn or string, measure and cut lengths to the size of each penguin and label them. If desired, go to the book's teaching activities (www.ArbordalePublishing.com and click on the cover) to print and cut out penguin cards. Use the yarn to compare penguin sizes.

Find objects that are the same approximate height or length as the penguins. Can you put those objects in order by size?

How would you describe the penguins?

tall, taller, and tallest
short, shorter, shortest
big, bigger, biggest
small, smaller, smallest

