

Penguin Parts Mini-Book

Children make a penguin-shaped mini-book that helps them investigate what's inside a penguin's body.



Penguin Particulars

The body of a penguin is well adapted to its cold-water environment. Penguins are covered in short, oily top feathers that form a waterproof coat. Penguins care for these feathers by preening—they use their beaks to spread oil from a gland at the base of their tail over the feathers to keep them waterproof and bendable. Underneath the top feathers is fluffy down that traps a layer of warm air against their skin. Under the skin is a thick layer of fat, called blubber, that keeps body heat in and cold out.

Penguins do not have hollow lightweight bones like flying birds. The solid heavier bones of penguins help keep them underwater when swimming and diving. A penguin's wing bones are joined together to form a strong, stiff paddle, and they have powerful muscles attached to them. Their wings act as paddles that push water and propel them forward. A penguin's streamlined torpedo shape allows it to move quickly through the water. Their webbed feet and tail help them steer while swimming.



Making the Model

Make double-sided copies of pages 21–22, or glue the two pages together. Check that the cover and page 2 are back to back.

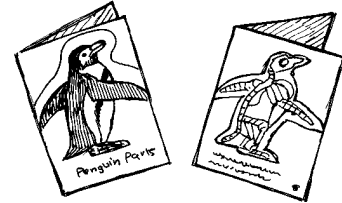
Materials

- ❄️ reproducible pages 21–22
- ❄️ scissors
- ❄️ tape
- ❄️ glue
- ❄️ crayons, colored pencils, or markers (optional)

2 Color the pages, if desired. The penguin shown is a Humboldt. Use the penguin poster on pages 11–13 as a coloring guide.

3 Cut the page in half along the solid black horizontal center line.

4 Fold each half along the dotted vertical line so that the cover and page 5 are on top.



5 Place the cover through page 4 on top of pages 5 to 8. Tape together on the left along the dotted line to make the book's binding.

6 Cut the top off the entire book along the solid black line on the cover.



Dive Deeper!

Why It's Waxy

The waterproofing oil that penguins spread on their feathers is waxy. Help your students understand how a waxy oil coating waterproofs: Take two pieces of paper and draw a small circle on each. Color in one of the circles with a wax crayon. Next, sprinkle some water on each circle and hold up both sheets of paper. Ask: What happens? (The water will soak into the uncolored circle but run off the crayon-colored circle.)

Teaching With the Model

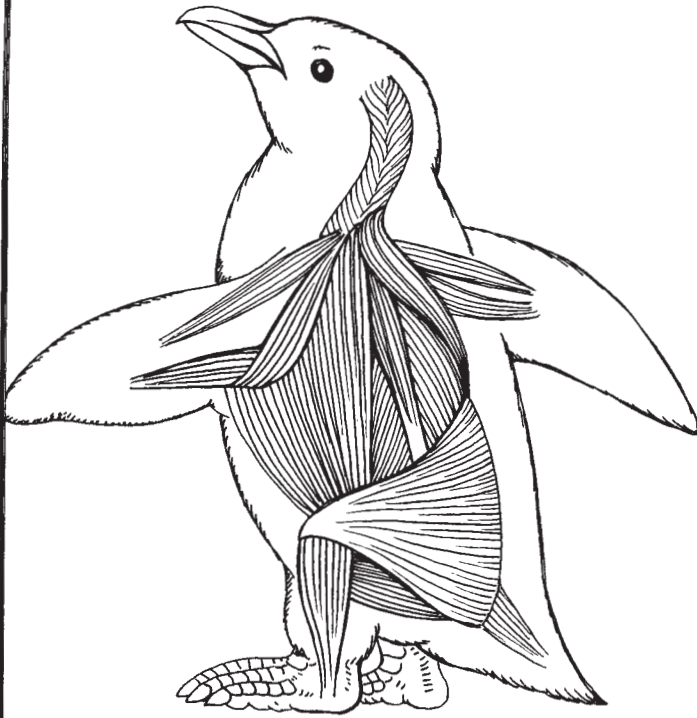
1 Let students read their mini-books. Then ask: How do penguins stay warm? (They have feathers that keep out water and trap warm air next to the skin, and they have a layer of insulating fat called blubber.)

2 Why does a penguin need large, strong muscles? (to move its flipperlike wings up and down when swimming)

3 Are penguin bones lightweight or heavy? (heavy) Do you think all birds have heavy bones? (No, most birds that fly have lightweight, hollow bones.)

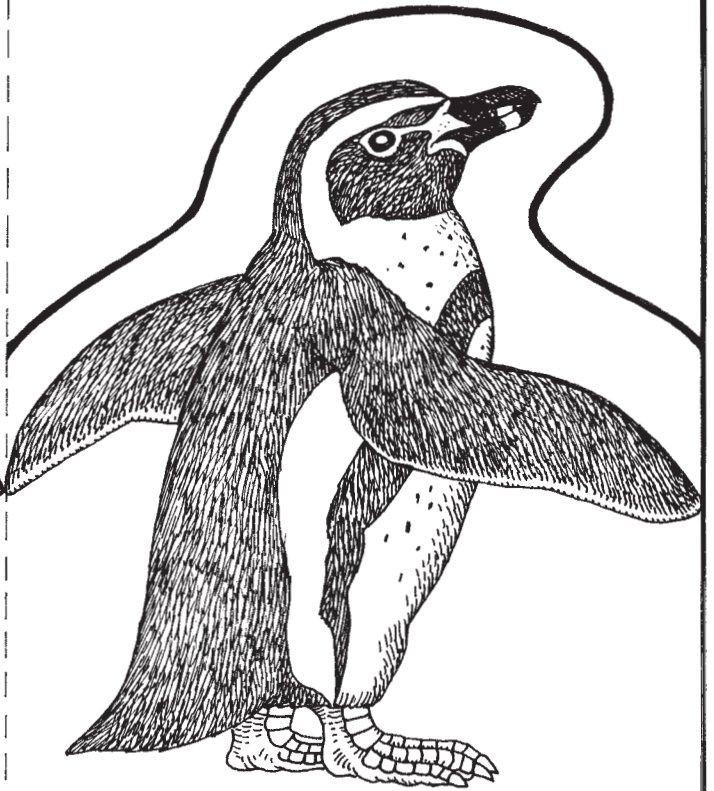
4 What are some of the soft parts (organs) of a penguin's body? (brain, heart, lungs, crop, intestines) Review the function of each organ. (The brain is the body's control center; the heart pumps blood throughout the body; the lungs enable the penguin to breathe; the crop is a pouch in the throat where food is partially digested; the intestines further break down food so that it can be used by the body.)

5 How does a penguin's body help it swim? (Its streamlined shape moves quickly through water, its wings act as paddles that push water, and its webbed feet help the penguin steer.)



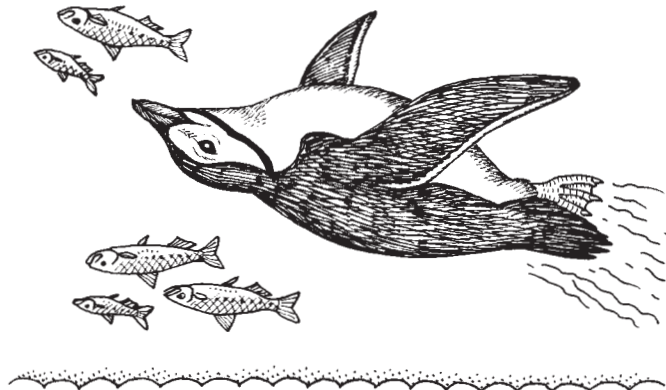
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A penguin's muscles are strong.



Penguin Parts

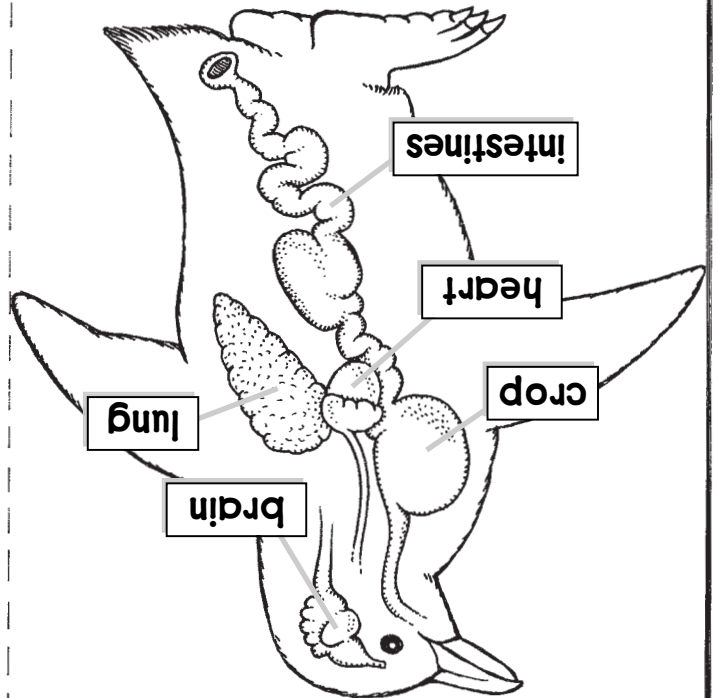
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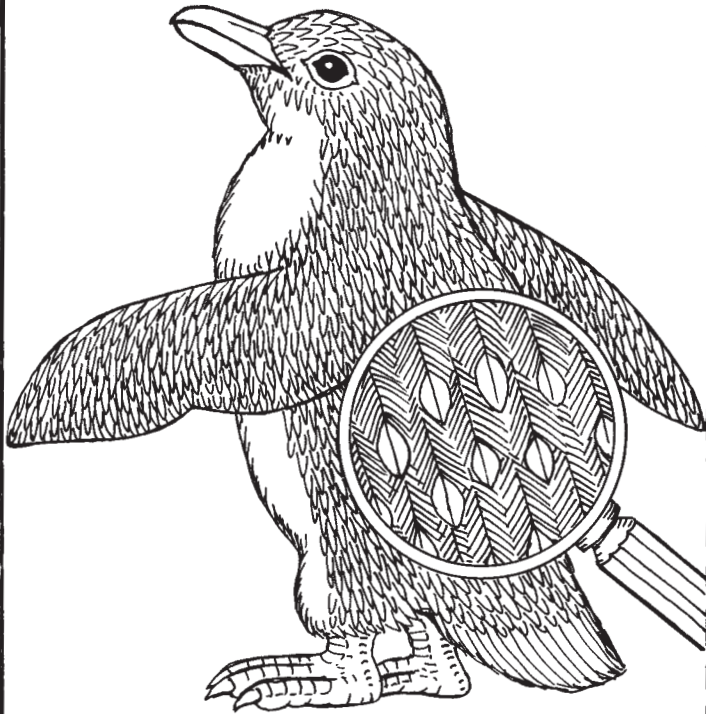


A penguin's shape helps it swim. So do its flippers and webbed feet.

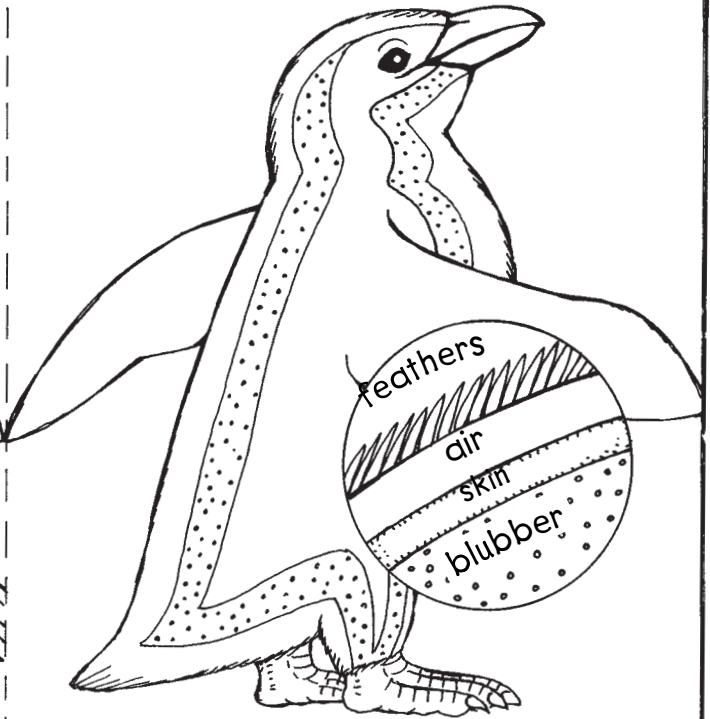
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Under the bones are many soft parts called organs.

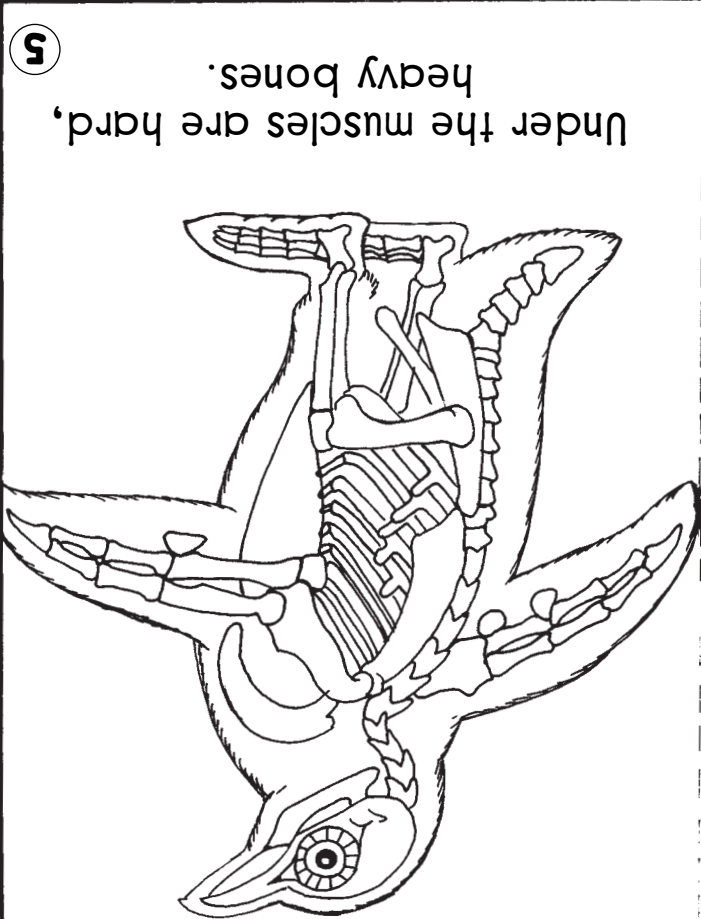




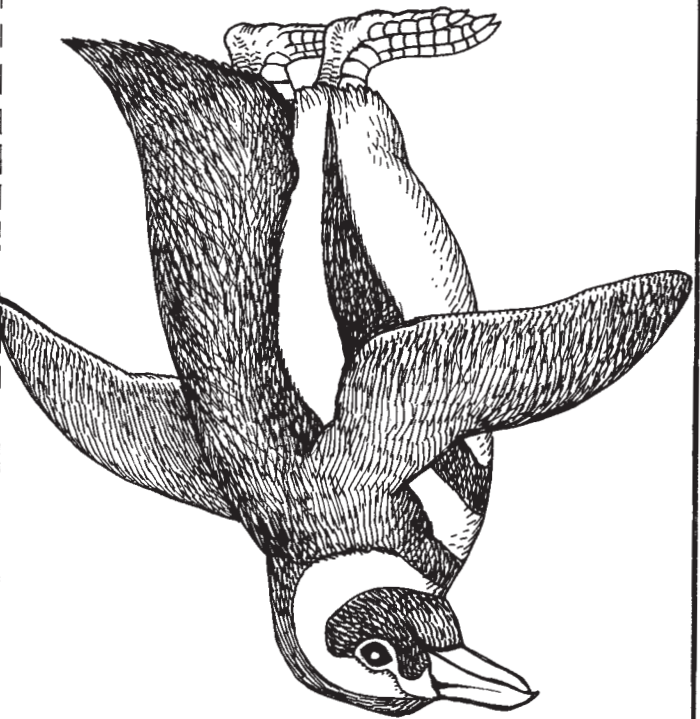
2 Feathers keep a penguin warm.



3 So do skin, blubber, and trapped air.



5 Under the muscles are hard, heavy bones.



8 Penguins are built for swimming in icy, cold water!